ICMRI 2023
Magnificent Realm of MRI in Healthcare
November 3 - 4, 2023
Grand Walkerhill Seoul, Seoul, Korea

THE 11th INTERNATIONAL CONGRESS ON MRI & 28th ANNUAL SCIENTIFIC MEETING OF KSMRM

PROGRAM BOOK
https://icmri.ksmrm.org/2023m/

Hosted by
Korean Society of Magnetic Resonance in Medicine

Supported by
SEUL METROPOLITAN GOVERNMENT
Korean Federation of Science & Technology Societies
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Dear ICMRI 2023 Participants,

On behalf of the Organizing Committee, it is my great pleasure and honor to welcome you to International Congress on MRI (ICMRI) 2023 & 28th Annual Scientific Meeting of the Korean Society of Magnetic Resonance in Medicine (KSMRM) from November 3rd to 4th, 2023, in Seoul, Korea.

The KSMRM has been hosting the ICMRI annually, bringing MDs and PhDs together to provide a venue featuring cutting-edge scientific innovations while bridging the gap between on-going academic developments and industrial implementations in MRI. Thanks to your efforts and growing interest in our field, this congress has become a major forum for the Asian MRI community, bringing together over 1,000 annual participants from more than 25 countries.

Under the theme "Magnificent Realm of MRI in Healthcare", ICMRI 2023 will offer the highest standard of up-to-date sessions by internationally distinguished speakers on multiple subjects related to the MRI field. It will be an unparalleled and unique opportunity to catch up on the newest trends, broaden our viewpoints, and gain fresh insights. For our participants, the organizing committee has launched special new programs and joint symposiums with our related societies.

I hope that all participants enjoy ICMRI 2023 by experiencing the latest knowledge and networking with colleagues.

I wish you all a fruitful and stimulating congress, and look forward to meeting you all at ICMRI 2023.

Yun-Hyeon Kim, MD., Ph.D.
President, Organizing Committee
The 11th International Congress on MRI
The 28th Annual Scientific Meeting of KSMRM
ICMRI 2023 ORGANIZING COMMITTEE

<table>
<thead>
<tr>
<th>Role</th>
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<th>Affiliation</th>
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<tr>
<td>Congress President</td>
<td>Yun-Hyeon Kim</td>
<td>Chonnam National University Hospital</td>
</tr>
<tr>
<td>Congress Vice-President</td>
<td>Jung Hee Lee</td>
<td>Samsung Medical Center</td>
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<tr>
<td>Secretary-General</td>
<td>Sang Il Choi</td>
<td>Seoul National University Bundang Hospital</td>
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<td>Treasurer</td>
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<td>Ho Sung Kim</td>
<td>Asan Medical Center</td>
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<td>Chair, Scientific Exhibition Committee</td>
<td>HyungJoon Cho</td>
<td>UNIST</td>
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<td>Jang Gyu Cha</td>
<td>Soonchunhyang University Bucheon Hospital</td>
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## ICMRI 2023 SCIENTIFIC PROGRAM COMMITTEE MEMBER

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<td>Daegu-Gyeongbuk Medical Innovation Foundation</td>
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## PROGRAM AT A GLANCE

### November 3 (Fri.)

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### November 2 (Thu.)

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**SY:** Symposium  
**SS:** Scientific Session (Oral Presentation)  
**LS:** Luncheon Symposium  
**VS:** Vendor Session  
**Kor:** Korean  
**Eng:** English  

*Free beer and soft drinks will be available during poster Q&A time.*
# PROGRAM AT A GLANCE

**November 4 (Sat.)**

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<td>LS06 SIEMENS Healthineers</td>
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# SESSION TIMETABLE

## November 2 (Thu.)

### Place
- Aston House

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<td>16:00-17:30</td>
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<td>SY08 Neuro 1 Harnessing the Future: State-of-the-Art MRI for Clinical Excellence</td>
<td>PP01 Advanced (16:00 - 16:40)</td>
<td>MS04 Chest Potential Lung MR and Practical Mediastinal MR</td>
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<td>17:00-18:00</td>
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# SESSION TIMETABLE

**November 3 (Fri.)**

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<td>Banquet (Walker Hall, 1F)</td>
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*Free beer and soft drinks will be available during poster Q&A time.*
# SESSION TIMETABLE

## November 4 (Sat.)

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<td>Neuro 2</td>
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<td>Abdomen 3</td>
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<td>Next Frontiers: Unraveling the Emerging Techniques</td>
<td>MR Engineering 2</td>
<td>Abbreviated MRI for HCC Surveillance or Follow-Up</td>
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<td>MSK 3 MR-Based Conductivity Imaging</td>
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# SESSION TIMETABLE

**November 4 (Sat.)**

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### 08:00-08:30
**Clinical Case Presentation**

### 08:30-10:00
- **SY13 QSM**: Quantitative Susceptibility Mapping for Clinicians
  - **Kor**
- **SY14 MD-PhD Collaboration 1**: Recent Advances in Parkinson’s Disease Imaging
  - **Eng**
- **SY15 Cardiovascular 1**: Exploring the Mysteries of Myocarditis (through Cardiac MRI)
  - **Eng**

### 10:00-10:30
**Break**

### 10:30-11:10

### 11:10-11:50

### 11:50-12:20
**Break**

### 12:20-13:20
- **LS06**: One Step Forward with Advanced Cardiac MRI
  - **Eng**

### 13:20-13:50
**Break**

### 13:50-15:20
- **SY17 Cardiovascular 2**: One Step Forward with Advanced Cardiac MRI
  - **Eng**
- **MS06 Molecular**: Expanding the boundary of MR
  - **Eng**

### 15:20-15:40
**Break**

### 15:40-17:10
- **Joint04 KSMRT-KSMRM Joint Session**: MR Safety
  - **Kor**
- **SY20 MD-PhD Collaboration 2**
  - **Kor**

### 17:10-17:30

### 17:30-18:00

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**Poster Session**

**KSMRM Educational Course**

**KSMR**
Functional MRI of the Lungs: From a Fancy Toy to a Useful Tool

Lung MRI provides added value to your thoracic imaging practice, being complementary or - in many cases - the even better alternative to X-ray and CT. Its functional imaging capacities to study lung perfusion, airway dysfunction, lung ventilation and respiratory mechanics are the particular strength and future of MRI. The aim of this lecture is to summarize the current state of development and to discuss promising clinical applications.

1) Imaging of lung perfusion

The clinically most established method is first pass contrast-enhanced imaging with bolus injection of gadolinium chelates and time resolved gradient-echo (GRE) sequences covering the whole lung (<1 volume/s). Images are evaluated visually or semi-quantitatively, while absolute quantification remains challenging due to the nonlinear relation of T1- shortening and contrast material concentration. An example of successful clinical application is MRI for acute pulmonary embolism.

Non-contrast enhanced perfusion imaging is still experimental, either based on arterial spin labeling or Fourier decomposition. The latter is used to separate high- and low-frequency oscillations of lung signal related to the effects of pulsatile blood flow.

2) Imaging of airway dysfunction

For imaging of airway dysfunction, dynamic, time-resolved MRI directly visualizes expiratory airway collapse down to the lobar level (CT: segmental level). Obstruction of even smaller airways becomes visible as air trapping on the expiratory scans. Potential clinical applications to study tracheomalacia in newborn and airways involvement in COPD have been reported.

3) Imaging of lung ventilation

Dynamic contrast-enhanced MRI (DCE MRI) with the approach described above indirectly shows regional hypoventilation as perfusion deficits resulting from hypoxic vasoconstriction of the dependent lung volumes. An example of successful clinical application is MRI of cystic fibrosis in children.
More direct, but still experimental approaches use either inhalation of pure oxygen, an aerosolized contrast agent, fluorinated gases or hyperpolarized noble gases. The latter allow not only for the assessment of lung ventilation, but also to study distal airspace dimensions (with diffusion weighted imaging, Xe/He), local pO₂ (He signal relaxation times) and gas exchange/lung diffusion capacity (Xe uptake).

Without any contrast agent, assessment of lung volume changes using dynamic 3D series allows for calculation of regional ventilation. In addition to detection blood flow detection, Fourier decomposition MRI as described above allows to study ventilation in the same session and appears as interesting candidate for clinical application.

4) Imaging of respiratory mechanics

Time-resolved series with high background signal such as GRE or steady-state free precession visualize movements of chest wall, diaphragm, mediastinum, lung tissue, tracheal wall, and tumor. In particular dynamic studies of diaphragmatic motion appear to be a promising clinical application. Regional mechanical properties of the lung tissue can be assessed with deformation mapping using dynamic 3D series.

*Keywords: Functional MRI, Lung, Ventilation, Perfusion, Respiratory mechanics*
Prostate MR: Current Status and Future Perspectives

Magnetic resonance imaging (MRI) continues to evolve as a powerful modality for localization and staging of prostate cancer. MRI is able to provide detailed anatomical images due to high spatial resolution, superior contrast resolution and multiplanar capability.

With T1-weighted and T2-weighted MR images of prostate, the information regarding the seminal vesicle invasion, periprostatic invasion as well as the apical appearance or the length of membranous urethra are easily obtained.

Recent advances employ functional and physiologic MR imaging techniques including MR spectroscopy (MRS), Dynamic contrast enhancement imaging (DCE) and Diffusion weighted imaging (DWI). Diffusion-weighted imaging interrogates the tissue microstructure at the microscopic scale of water self-diffusion (Brownian motion). Often, these new techniques are used together in a multiparametric approach. The use of multiparametric magnetic resonance imaging (mpMRI) in the assessment of prostate cancer, incorporating anatomical (T1- and T2-weighted) and functional MRI sequences such as diffusion-weighted (DW) and dynamic contrast-enhanced (DCE) MRI, has grown steadily in recent years and is now part of the standard clinical pathway in many institutions.

After, the Prostate Imaging Reporting and Data System (PI-RADS) v1 was introduced in 2012, The PI-RADS v2 document was released online in December 2014. The specific aims of PI-RADS v2 were to set technical and reporting standards for consistent interpretation and communication of mpMRI. With introduction of PI-RADS v2.0, more efforts were developed for localization of the prostate cancer. In 2019, PI-RADS steering committee published a updated version, PI-RADS v2.1. With advancement of localization system and registration technique, MR-TRUS fusion biopsy became new trend in prostate biopsy.

Artificial intelligence is increasingly being applied to radiologic and pathologic images to improve clinical accuracy and efficiency in prostate cancer diagnosis.
In this talk, current status and role of prostate MR and the perspectives of prostate MR including AI and high tesla MR would be introduced.

Keywords: Prostate, AI, High tesla, PI-RADS
Deuterium Magnetic Resonance Imaging and Spectroscopy in Human Subjects

The low natural abundance (~0.015%) and small gyromagnetic ratio (6.54 MHz/T) of deuterium ($^2$H) reduce the available NMR signal compared to $^1$H. However, the quadrupolar moment of $^2$H leads to shorter longitudinal relaxation times that allow faster signal averaging, partially compensating for the reduction in intrinsic signal-to-noise ratio. The minimal equipment modifications required for implementing $^2$H imaging and the simplicity of the required pulse sequences, mean that $^2$H imaging has significant potential for clinical application. This has led to an increasing interest in the use of deuterium magnetic resonance in conjunction with injection or ingestion of $^2$H-labelled compounds, particularly labelled glucose or heavy water, as a means of monitoring cellular metabolism (1,2). Residual quadrupolar splitting of the $^2$H signal from water also potentially provides a way of probing tissue microstructure in vivo (3).

Using a Philips 7T scanner equipped with a dual-tuned $^2$H/$^1$H head coil we have monitored glucose brain metabolism in 10 healthy subjects following ingestion of D$_2$- or D$_7$-labelled glucose (0.75g/kg body weight). Signals from the glucose (Glc) and its metabolic products (glutamate/glutamine=Glx and water=HOD) are readily detected, with significantly increased signal strength (~x 3.5 Glc, ~x 1.5 Glx and ~ x 4.5 HOD) for D$_7$-labelled glucose. The same system has been used to characterise the HOD signals from different brain tissues in healthy participants who increased their deuterated water content to ~1.5% by drinking heavy water (4). We also measured the time-course of $^2$H signal changes in the brain immediately following ingestion of heavy water. At 3T, we have investigated the orientation dependent quadrupolar splitting of the $^2$H signal from HOD in muscle (3) and have demonstrated double quantum filtered chemical shift imaging in vivo. We are currently evaluating the level of incorporation of $^2$H in fat in subjects loading with heavy water over a 4-week period.

2) De Feyter and de Graaf. JMR 2021; 326:106932.
3) Gursan et al. MRM 2021;87:1165-1173.
4) Cocking, et al. MRM, 2023: 89;1514-1521

Keywords: Deuterium, Labelled glucose, Heavy water, Metabolism, Muscle, Brain
PLENARY LECTURES

PLENARY LECTURE IV

Yongmin Chang
Kyungpook National University, Korea

November 4 (Sat), 11:10 - 11:50
Vista 1+2+3

Low Molecular-weight MRI Theranostic Agents

Theranostics is an exciting field of medicine that was coined in 2002 and refers to the combination of diagnosis and therapy in a single molecule or material. Theranostic agents provide a way to image, characterize, and monitor diseases while simultaneously delivering a specific therapeutics. The combination of diagnosis and therapy is therefore expected to offer synergistic advantages in comparison to standard imaging or therapy alone.

Theranostic agents usually combine one or more imaging modalities such as magnetic resonance imaging (MRI), positron emission tomography (PET), single photon emission computed tomography (SPECT), ultrasound (US), or fluorescence imaging (FL) with different therapeutics including chemotherapy, immunotherapy, radiotherapy (RT) or photodynamic therapy (PDT). In case of MR theranostics, the nan-based platforms such as iron oxide nanoparticle, micelle, liposome were often used.

In this lecture, the discussion will be focused on low molecular-weight MRI theranostic agents using small molecular-weight gadolinium MR contrast agent. While the main effort in theranostic research belongs to cancer theranostics, the chronic inflammation targeted MR theranostics will be introduced as a new possible field of theranostics.
FLOOR PLAN

Walker Hall
- Banquet

WALKER HALL 1, 2
FLOOR PLAN

Vista Hall 1
- Neuro 1, 2 Scientific Session
- Neuro 1, 2 Symposium
- Advanced Symposium
- AI Vendor Session
- Closing Ceremony
- Vendor Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 1+2+3
- Opening Ceremony
- Plenary Lectures
- Exhibition
- Coffee Break
- Exhibition
- Coffee Break
- Photo Zone
- Agora Lecture
- ISP (Informal Scientific Presentation)

Vista Hall 2
- MRE 1,3 Symposium
- JSMRM-KSMRM Joint Symposium
- Advanced Power Pitch
- CSMRM-KSMRM Joint Symposium
- Meet the Experts Session
- Vendor Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 3
- Abdomen 1 Multi Session
- Abdomen 2, 3 Symposium
- Chest Multi Session
- MSK 3 Multi Session
- Quantitative MRI Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 3
- ICMRI 2023 Secretariat
- Cloakroom

Vista Hall 1
- Neuro 1, 2 Scientific Session
- Neuro 1, 2 Symposium
- Advanced Symposium
- AI Vendor Session
- Closing Ceremony
- Vendor Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 2
- MRE 1,3 Symposium
- JSMRM-KSMRM Joint Symposium
- Advanced Power Pitch
- CSMRM-KSMRM Joint Symposium
- Meet the Experts Session
- Vendor Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 3
- Abdomen 1 Multi Session
- Abdomen 2, 3 Symposium
- Chest Multi Session
- MSK 3 Multi Session
- Quantitative MRI Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 3
- ICMRI 2023 Secretariat
- Cloakroom

Vista Hall 1
- Neuro 1, 2 Scientific Session
- Neuro 1, 2 Symposium
- Advanced Symposium
- AI Vendor Session
- Closing Ceremony
- Vendor Session
- Luncheon Symposium
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Vista Hall 2
- MRE 1,3 Symposium
- JSMRM-KSMRM Joint Symposium
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- CSMRM-KSMRM Joint Symposium
- Meet the Experts Session
- Vendor Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 3
- Abdomen 1 Multi Session
- Abdomen 2, 3 Symposium
- Chest Multi Session
- MSK 3 Multi Session
- Quantitative MRI Session
- Luncheon Symposium
- Luncheon Symposium

Vista Hall 3
- ICMRI 2023 Secretariat
- Cloakroom
CONGRESS INFORMATION

ON-SITE FACILITIES

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* All speakers are required to visit the Preview Room to submit their presentation materials at least 1 hour before their session.

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VENDOR SESSIONS

Nov. 3 (Fri) 08:00 - 08:30

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LUNCHEON SYMPOSIA

Lunch boxes will be provided to all participants at luncheon symposia during the congress as follows.

Nov. 3 (Fri) 12:40 - 13:40

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>> 18
CONGRESS INFORMATION

Nov. 4 (Sat) 12:20 - 13:20

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AGORA LECTURE

Nov. 3 (Fri) 15:40 - 16:00

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SOCIAL PROGRAMS & POSTER SESSION

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<tr>
<td>Coffee Breaks</td>
<td>Nov. 3 (Fri) 10:00 - 10:30, 13:40 - 14:10, 15:40 - 16:00</td>
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<td></td>
<td>Nov. 4 (Sat) 10:00 - 10:30, 13:20 - 13:50, 15:20 - 15:40</td>
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<tr>
<td>Poster Session</td>
<td>Nov. 3 (Fri) 16:00-17:30</td>
</tr>
<tr>
<td>* Free soft drinks (first come, first served) will be available during poster Q&amp;A time!</td>
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</tr>
<tr>
<td>Closing Ceremony</td>
<td>Nov. 4 (Sat) 17:30 - 18:00</td>
</tr>
</tbody>
</table>
CONGRESS INFORMATION

EVENTS

Exhibition Stamp Event
1. Visit all our exhibition booths.
2. Get all the stamps from the exhibition booths.
3. Visit the information desk (B1F) with your completed stamp sheet.
4. Participants who collect all the stamps will receive a Starbucks gift card (KRW 10,000).

* Available in Korea
* 국내 휴대폰 번호 있으신 선생님들은 학회 종료 후 문자로 발송 드리오니, 정보를 정확히 기재하여 주세요.

Lucky Draw - Banquet
1. Before entering the banquet (Walker Hall, 1F), participants will get Lucky Draw coupons.
2. Enjoy the Banquet!
3. Give it a shot and test your luck.

Lucky Draw - Closing Ceremony
1. Before entering the closing ceremony (Vista Hall 1, B2F), participants will get Lucky Draw coupons.
2. Give it a shot and test your luck.

<table>
<thead>
<tr>
<th>Prize</th>
<th>1st Winners</th>
<th>2nd Winners</th>
<th>3rd Winners</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPad (10th Generation)</td>
<td>AirPods Pro (2nd Generation)</td>
<td>Aesop Body and Hand Care Gift</td>
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<tr>
<td>4th Winners</td>
<td>5th Winners</td>
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</tr>
<tr>
<td>Gift Certificate (KRW 100,000)</td>
<td>Gift Certificate (KRW 50,000)</td>
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</tbody>
</table>

* All winners are required to submit a copy of their ID (or copy of passport) to the secretariat (info@icmri.org) for the Korean Tax Authority. Without it, no prizes will be given as the ICMRI organizing committee is liable for all taxes.
CONGRESS INFORMATION

CERTIFICATE OF ATTENDANCE
Certificates of attendance and presentation, and receipts will be issued upon request through email (info@icmri.org).

BEST TRAINEE SCIENTIFIC AWARDS
The quality of the research presented at the congress will be evaluated and scored by judges using standardized evaluation forms.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Best Trainee Oral Presentation Awards</th>
<th>Best Trainee Poster Presentation Awards</th>
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<tr>
<td>Silver</td>
<td>KRW 100,000</td>
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</table>

ICMRI CONTRIBUTION AWARDS
Awarded to corresponding authors (PI: Principal Investigator) who submit many abstracts.

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<tr>
<th></th>
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</table>
CONGRESS INFORMATION

연수 평점 안내
[ONLY for Participants who have Medical Doctor License in Korea]

대한의사협회의 규정에 따라 학술대회 참석 시 명찰의 QR코드를 이용하여 입/퇴실 시간을 체크하여야 평점이 부여됩니다. 또한 참석시간에 따라 부분평점이 부여될 수 있습니다.

벤더 세션(코드: VS)과 렌진 심포지엄(코드: LS)을 포함하여 Break 시간은 평점 시간 반영되지 않습니다.

일별 최대 평점 안내

<table>
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<tr>
<th>일 자</th>
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<tr>
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<td>6평점</td>
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<tr>
<td>11/4 (토)</td>
<td>6평점</td>
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시간별 최대 평점 안내

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<td>1시간 미만</td>
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<tr>
<td>1시간 이상 - 2시간 미만</td>
<td>1평점</td>
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<tr>
<td>2시간 이상 - 3시간 미만</td>
<td>2평점</td>
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<td>3시간 이상 - 4시간 미만</td>
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<td>6시간 이상</td>
<td>6평점</td>
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* 1일 총 2회 QR코드 태그 (최초/최종 태그) 시간 기준
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EXHIBITION

Vista Hall Lobby (B2F)

<table>
<thead>
<tr>
<th>Number</th>
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<tbody>
<tr>
<td>1</td>
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<td>Bayer Korea Ltd.</td>
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<td>Siemens Healthineers Ltd.</td>
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<td>PHILIPS Korea</td>
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<td>Guerbet Korea</td>
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DAILY PROGRAM

NOVEMBER 3 (Fri)
DAILY PROGRAM

NOVEMBER 3 (Fri)

08:00-08:30  [VS01] Vendor Session 1  (Eng.)  
VS01-1  DCE Application for Prediction of Radiation Therapy Response to Brain Tumors  
08:00-08:30  Seung Hong Choi (Seoul National University Hospital, Korea)

08:00-08:30  [VS02] Vendor Session 2  (Eng.)  
VS02-1  40 Years of GE MRI Innovation  
08:00-08:30  Axel Hartwig (GE HealthCare, Singapore)

08:30-10:00  [SS01] Neuro Scientific Session 1  (Eng.)  

SS01-1  High-Resolution Imaging of the Trigeminal Nerve: Anatomy and Specialized MRI Protocol  
08:30-08:40  Yebin Kim, Eunhee Kim  
Department of Radiology, Ewha Womans University Mokdong Hospital, Seoul, Korea

SS01-2  Accelerated Cervical Spine MRI with Deep Learning-Based Reconstruction Algorithm: A Prospective Comparison with Conventional MRI in the Evaluation of Degenerative Diseases and Myelopathy  
08:40-08:50  So Junq Koo¹, Roh-Eul Yoo¹, Seung Hong Choi¹, Seungwook Yang², Hyunsuk Yoo¹, Kyu Sung Choi¹, Kyung Hoon Lee³  
¹ Department of Radiology, Seoul National University Hospital, Seoul, Korea  
² Clinical Research, AIRS Medical, Seoul, Korea  
³ Department of Radiology, Soonchunhyang University Hospital, Seoul, Korea

SS01-3  Usefulness of PETRA-MRA for Follow-Up Evaluation after Flow Diverter Insertion in Cerebral Aneurysm: A Case Review with Comparison of CT Angiography, TOF-MRA, CE-MRA, and DSA  
08:50-09:00  Yoon Seo Choi, Eun Hee Kim  
Department of Radiology, Ewha Womans University Mokdong Hospital, Seoul, Korea
DAILY PROGRAM

November 3 (Fri)

SS01-4  Revisiting Prognostic Factors of Gliomatosis Cerebri in Adult-Type Diffuse Gliomas: No Evidence to Support Aggressive Surgery of Contrast-Enhancing Tumors
09:00-09:10  Ilah Shin¹, Yongsik Shim², Yae Won Park¹, Sung Soo Ahn², Seung-Koo Lee²

¹ Radiology, The Catholic University of Korea, Seoul, Korea
² Radiology, Yonsei University College of Medicine, Seoul, Korea

SS01-5  Unsupervised Model-Free Leakage Detection in DCE-MRI Using Generative Adversarial Networks
09:10-09:20  Joon Jang¹, In Pyeong Hwang²,³,⁴, Hyeonjin Kim¹,³, Seung Hong Choi³,⁴, Kyu Sung Choi²,³

¹ Department of Biomedical Sciences, Seoul National University, Seoul, Korea
² Artificial Intelligence Collaborative Network, Department of Radiology, Seoul National University Hospital, Seoul, Korea
³ Department of Radiology, Seoul National University Hospital, Seoul, Korea
⁴ Institute of Radiation Medicine, Seoul National University Medical Research Center, Seoul, Korea

SS01-6  Generative Isocitrate Dehydrogenase-Mutant Gliomas: Improving Diagnostic Performance for Molecular Prediction via T2/FLAIR Mismatch Sign Augmentation
09:20-09:30  Ha Kyung Jung¹, Chang Yong Choi², Jae Ho Lee¹, Nam Kug Kim¹,², Ho Sung Kim¹, Ji Eun Park¹

¹ Department of Radiology and Research Institute of Radiology, Asan Medical Center, Seoul, Korea
² Department of Convergence Medicine, Asan Medical Center, Seoul, Korea

SS01-7  Advancing Brain Tumor Neoplasm Segmentation Precision: A Comparative Study of Advanced Machine Learning Algorithms and Neural Network Architectures in Brain Magnetic Resonance Imaging
09:30-09:40  Rifaldy Fajar, Mita Nur Syailendra, Hassanat Paramita Rusdi

Computational Medicina Laboratory, International University Semen Indonesia, Gresik, Indonesia

SS01-8  Initial Clinical Experience of Synthetic MRI as a Routine Brain Metastasis Imaging Protocol in Daily Practice: A Single-Center Study
09:40-09:50  Gaoyang Zhao¹, Xiaoyue Ma¹, Yuncai Ran¹, Ruilin Fan¹, Kun Zhang¹, Yanglei Wu², Yang Lai², Yong Zhang¹, Jingliang Cheng¹

¹ Department of MRI, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, Henan, China
² MR Collaboration, Siemens Healthineers Ltd., Beijing, China
SS01-9  Improved Dynamic Contrast-Enhanced MRI for Diffuse Gliomas: Clinical Application of Deep Learning-Based Reconstruction and Denoising Techniques

09:50-10:00  Junhyeok Lee¹, Kyu Sung Choi¹, Inpyeong Hwang¹, Seung Hong Choi¹, Jin Wook Chung¹, Jung Hyun Park¹, Woojin Jung²
¹ Department of Radiology, Seoul National University Hospital, Seoul, Korea
² AIRS Medical, Seoul, Korea

08:30-10:00  [SY01] MRE 1: Measurement Standards for Quantitative MRI (Kor.)

Chairs  Bongyoung Ahn (Research Center for Reliable Clinical Data, Korea)
         Sung Suk Oh (K-MEDI hub (Daegu-Gyeongbuk Medical Innovation Foundation), Korea)

SY01-1  Development of Water/Fat Emulsified Reference Materials for Magnetic Resonance Imaging
08:30-08:50  Hyo-Min Cho (Korea Research Institute of Standards and Science, Korea)

SY01-2  Development of Certified Reference Materials for T1 Relaxation Time Validation in MRI
08:50-09:10  Changwoo Lee (Korea Research Institute of Standards and Science, Korea)

SY01-3  Development of Modular Reference Phantom for MRI
09:10-09:30  Cheolpyo Hong (Daegu Catholic University, Korea)

SY01-4  Global Trends in Utilization of Medical Imaging Phantom in Multi-Center Clinical Trials
09:30-09:50  Kyung Won Kim (Asan Medical Center, Korea)

08:30-10:00  [MS01] Abdomen 1: Recent Technical Development and AI of Abdominal MRI (Eng.)

Chairs  Seung Soo Lee (University of Ulsan College of Medicine Asan Medical Center, Korea)
         Jeong Hee Yoon (Seoul National University Hospital, Korea)

MS01-1  Generative Models in AI for MRI Reconstruction
08:30-08:50  Hyungjin Chung (KAIST, Korea)
DAILY PROGRAM

November 3 (Fri)

**MS01-2 Abdominal MRI with Deep Learning**
08:50-09:10  
Seung Baek Hong (Pusan National University Hospital, Korea)

**MS01-3 Free-Breathing and Short Breath-Hold Liver MRI**
09:10-09:30  
So Hyun Park (Gachon University Gil Medical Center, Korea)

09:30-09:40  
Hong Wei, Jeong Min Lee
1. Department of Radiology, Seoul National University Hospital, Seoul, Korea
2. Department of Radiology, Seoul National University College of Medicine, Seoul, Korea
3. Department of Radiology, West China Hospital, Chengdu, Sichuan, China

**MS01-5 Changes in the Prevalence of NAFLD, MAFLD, and MASLD in a Health Check-Up Using MRI-Derived Proton Density Fat Fraction**
09:40-09:50  
Hee Jun Park, Sunyoung Lee, Jae Seung Lee
1. Department of Radiology and Research Institute of Radiological Science, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea
2. Department of Internal Medicine, Yonsei University College of Medicine, Seoul, Korea
3. Institute of Gastroenterology, Yonsei University College of Medicine, Seoul, Korea
4. Yonsei Liver Center, Severance Hospital, Seoul, Korea

**MS01-6 Diagnostic Performance of Abbreviated Non-Contrast MRI for Liver Metastases in Patients with Newly Diagnosed Breast Cancer**
09:50-10:00  
Taewon Han, Jaeseung Shin, Kyoung Doo Song, Seungchul Han
Department of Radiology, Samsung Medical Center, Seoul, Korea

**SY02-1 Diffusion Tensor Image Analysis along the Perivascular Space (DTI-ALPS) and Interstitial Fluid Dynamics of the Brain**
08:30-08:55  
Toshiaki Taoka (Nagoya University, Japan)
DAILY PROGRAM

NOVEMBER 3 (Fri)

**SY02-2**  Physics-driven Synthetic Data Deep Learning for Magnetic Resonance Imaging and Spectroscopy  
08:55-09:20  Xiaobo Qu (Xiamen University, China)

**SY02-3**  Glymphatic Imaging: Concepts and Study Methodology  
09:20-09:40  Roh-Eul Yoo (Seoul National University Hospital, Korea)

**SY02-4**  Zero-shot Prior Learning of Multi-echo/contrast MRI Reconstruction Using Deep Untrained Generative Networks with Iterative Refinement  
09:40-10:00  Tae Hyung Kim (Hongik University, Korea)

08:30-10:00  **[MS02] Pediatric Session**  (Eng.)

Chairs  Young Ah Cho (Asan Medical Center, Korea)  
Tae Yeon Jeon (Samsung Medical Center, Korea)

**MS02-1**  Thoracic MR Techniques and Indications for Pediatric Patients  
08:30-09:00  Franz Wolfgang Hirsch (University of Leipzig, Germany)

**MS02-2**  MRI for Anorectal Abnormalities in Children  
09:00-09:30  Pyeong Hwa Kim (Asan Medical Center, Korea)

**MS02-3**  Non-Invasive Prediction of Epileptogenic Brain Tissue in Children with Drug-Resistant Epilepsy Using Deep Learning Neural Network with Incomplete MRI Sequence Data  
09:30-09:37  Justin Jeong$^{1,2,3}$, Soumyanil Banerjee$^4$, Min-Hee Lee$^1$, Hiroshi Uda$^1$, Eishi Asano$^{1,2,3}$, Csaba Juhasz$^{1,2,3}$, Ming Dong$^4$  

1. Pediatrics, Wayne State University, Detroit, United States  
2. Neurology, Wayne State University, Detroit, United States  
3. Translational Neuroscience Program, Wayne State University, Detroit, United States  
4. Computer Science, Wayne State University, Detroit, United States

**MS02-4**  Improved Basal Ganglia Segmentation of Three Dimensional Neonatal Brain MR Images for Perivascular Space Assessment  
09:37-09:44  Oh Joon Kwon$^1$, Changmin Ryu$^1$, Eun A Kwon$^1$, Hyun Gi Kim$^2$, Yoonho Nam$^1$  

1. Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin-si, Korea  
2. Department of Radiology, Eunpyeong St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, 1021 Tongil-ro, Eunpyeong-gu, Seoul 03312, Korea
## DAILY PROGRAM

### November 3 (Fri)

#### MS02-5
**Fast Quantitative MRI Evaluation of Hydrocephalus Using 3D FLAIR: Initial Experience**
09:44-09:51
*Hyun Woo Goo, Sang Hyub Park*
*Radiology, Asan Medical Center, Seoul, Korea*

#### MS02-6
**MRI Findings of ISCA2-Related Neurodegenerative Mitochondrial Disorder: Case Report**
09:51-09:58
*Young Son, Hae Sung Yoon*
*Department of Radiology, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea*

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<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speakers</th>
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<td>08:30-10:00</td>
<td><strong>[MS03] MSK 1: Updates in Musculoskeletal MRI</strong> (Eng.)</td>
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<tr>
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<td>Chairs, Hye Won Chung (Asan Medical Center, Korea)</td>
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<td>Yeo Ju Kim (Hanyang University Hospital, Korea)</td>
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<tr>
<td>08:30-08:55</td>
<td><strong>MS03-1 Brief History of MR Image Reconstruction: From Fourier Transform to Deep Learning</strong></td>
<td><em>Woojin Jung (AIRS Medical, Korea)</em></td>
</tr>
<tr>
<td>08:55-09:20</td>
<td><strong>MS03-2 Short T2 MRI: Technical Principles</strong></td>
<td><em>Hyunyeol Lee (Kyungpook National University, Korea)</em></td>
</tr>
<tr>
<td>09:20-09:30</td>
<td><strong>MS03-3 Quantitative Analysis of Paraspinal Neck Muscles Using Two-Point Dixon MRI in Asymptomatic Young Adults</strong></td>
<td><em>Seungwon Yoon, Da Sol Park, Seun Ah Lee, Jung-Ah Choi</em></td>
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<td></td>
<td><em>Radiology, Hallym University Dongtan Sacred Heart Hospital, Hwaseong, Korea</em></td>
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<td>09:30-09:40</td>
<td><strong>MS03-4 Deep Learning-Based Fully Automated Fat Quantification of the Supraspinatus Muscle on MRI</strong></td>
<td><em>Tae Kun Kim, Hye Jin Yoo, Sung Hwan Hong, Ja Young Choi, Hee Dong Chae, Ji Seon Oh, Ieun Yoon, Woon Young Baek</em></td>
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<td><em>Seoul National University Hospital, Seoul, Korea</em></td>
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<td>09:40-09:50</td>
<td><strong>MS03-5 The Efficacy of Supplemental Carpal Tunnel Sequences in Patients Diagnosed with Trigger Finger</strong></td>
<td><em>Hyun-Joo Kim, Eunsun Oh, Jang Gyu Cha, Eunji Lee, Jiyoung Hwang, Seong Sook Hong</em></td>
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<td></td>
<td><em>Department of Radiology, Soonchunhyang University Hospital Seoul, Korea</em></td>
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## DAILY PROGRAM

### NOVEMBER 3 (Fri)

**MS03-6**  
**Can Magnetic Resonance Imaging Be Replaced by High Resolution Ultrasonography in Painful Wrist Joint**  
09:50-10:00  
Rajul Rastogi, Abhishek Kumar Singh, Vijai Pratap  
*Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India*

10:00-10:30  
Break & ISP (Informal Scientific Presentation)  
Vista Hall Lobby

10:30-10:50  
**Opening Ceremony**  
Vista 1+2+3

10:50-12:10  
[PL01&02] Plenary Lecture 1 & 2 (Eng.)  
Vista 1+2+3

- **Chairs**  
  Yun-Hyeon Kim (Chonnam National University Hospital, Korea)  
  Sang Il Choi (Seoul National University Bundang Hospital, Korea)

  - **PL01**  
    **Functional MRI of the Lungs: From a Fancy Toy to a Useful Tool**  
    10:50-11:30  
    Jürgen Biederer (University Hospital Heidelberg, Germany)

  - **PL02**  
    **Prostate MR: Current Status and Future Perspectives**  
    11:30-12:10  
    Hak Jong Lee (Seoul National University College of Medicine, Korea)

12:10-12:40  
Break

**[LS01] Luncheon Symposium 1 (Eng.)**  
Guerbet  
Vista 1

- **Chair**  
  Seung-Koo Lee (Yonsei University Severance Hospital, Korea)

- **LS01-1**  
  **Gadolinium Safety: What We Should Know in a Real Clinical Practice?**  
  12:40-13:05  
  Sang Il Choi (Seoul National University Bundang Hospital, Korea)
DAILY PROGRAM

November 3 (Fri)

LS01-2 Updates of Gadolinium Retention in Brain: Pathways and Quantification
13:05-13:30 Ji Eun Park (Asan Medical Center, Korea)

12:40-13:40 [LS02] Luncheon Symposium 2 (Eng.) Bayer Vista 2+3

Chairs Mi-Suk Park (Severance Hospital, Korea)
Boo-Kyung Han (Samsung Medical Center, Korea)

LS02-1 Maximizing the Potential of Abbreviated MRI in Clinical HCC Surveillance
12:40-13:00 So Yeon Kim (Asan Medical Center, Korea)
13:00-13:10 Q&A

LS02-2 Current Status of Abbreviated Breast MR
13:10-13:30 Eun Sook Ko (Samsung Medical Center, Korea)
13:30-13:40 Q&A

12:40-13:40 [LS03] Luncheon Symposium 3 (Eng.) Bracco Grand 1

Chair Kookjin Ahn (The Catholic University of Korea, Seoul St. Mary’s Hospital, Korea)

LS03-1 Experience of ProHance in Neuroimaging and Safety of ProHance
12:40-13:20 Toshinori Hirai (Department of Diagnostic Radiology, Faculty of Life Sciences, Kumamoto University, Japan)
13:20-14:10 쟅 jap Invited Only Grand 2+3

13:40-14:10 Break
**DAILY PROGRAM**

**NOVEMBER 3 (Fri)**

**14:10-15:40 [SY03] Advanced MR: Ultra-High Field Applications** *(Eng.)*

- **Chairs**: Jang-Yeon Park (Sungkyunkwan University, Korea)
  Sehong Oh (Hankuk University of Foreign Studies, Korea)

- **SY03-1**: Ultra High Spatial Resolution Ex-Vivo Imaging at 7T
  14:10-14:40 Mark J. Lowe (Cleveland Clinic, USA)

- **SY03-2**: Denoising Deep Learning Model for MR Angiography at 7T
  14:40-15:10 Hyunseok Seo (KIST, Korea)

- **SY03-3**: Next Generation 7T MRI Scanner for Ultra-High Resolution Human Brain Imaging
  15:10-15:40 David A Feinberg (University California Berkeley and Advanced MRI Technologies, USA)

**14:10-15:40 [Joint01] JSMRM-KSMRM Joint Session** *(Eng.)*

- **Chairs**: Masaaki Hori (Toho University Omori Medical Center, Japan)
  Jung Hee Lee (Samsung Medical Center, Korea)

- **Joint01-1**: Resting-State fMRI: Emerging Concepts for Future Clinical Application
  14:10-14:30 Shiori Amemiya (The University of Tokyo, Japan)

- **Joint01-2**: Multiparametric MRI of the Brain
  14:30-14:50 Akifumi Hagiwara (Juntendo University School of Medicine, Japan)

- **Joint01-3**: Potential of Breast MRI in Solving Challenges in Breast Cancer Care
  14:50-15:10 Mariko Goto (Kyoto Prefectural University of Medicine, Japan)

- **Joint01-4**: New Techniques for Improvement of Detectability of Hepatic Tumors on Gadoxetic Acid-Enhanced Hepatobiliary Phase MR Images
  15:10-15:30 Yuko Nakamura (Hiroshima University, Japan)
DAILY PROGRAM

November 3 (Fri)

Joint01-D  Panel Discussion
15:30-15:40  Su Min Ha (Seoul National University Hospital, Korea)
Yae Won Park (Yonsei University College of Medicine, Korea)
Won Chang (Seoul National University Bundang Hospital, Korea)
Ji Eun Park (Asan Medical Center, Korea)

14:10-15:40  [SY04] Abdomen 2: Imaging Diagnosis of HCC at Liver MRI (Eng.)
Vista 3

Chairs  Jeong Min Lee (Seoul National University Hospital, Korea)
        Jin-Young Choi (Severance Hospital, Korea)

SY04-1  LI-RADS: The Gaps in Current Knowledge and Future Directions
14:10-14:30  Victoria Chernyak (Memorial Sloan Kettering Cancer Center, USA)

SY04-2  Meta-Analysis for LI-RADS on MRI
14:30-14:50  Jaeseung Shin (Samsung Medical Center, Korea)

SY04-3  MRI Diagnosis of HCC in Current Guidelines Other than the LI-RADS
14:50-15:10  Ijin Joo (Seoul National University College of Medicine, Korea)

SY04-4  Prognostic MR Imaging Features of HCC
15:10-15:30  Hanyu Jiang (West China Hospital, Sichuan University, China)

14:10-15:40  [SY05] MRE 2: MR Engineering 1 (Eng.)
Grand 1

Chairs  Hyun Wook Park (KAIST, Korea)
        Chang-Beom Ahn (Kwangwoon University, Korea)

SY05-1  MRI Techniques for Monitoring Focused Ultrasound Treatments
14:10-14:40  Eugene Ozhinsky (University of California San Francisco, USA)

SY05-2  Advances in Simultaneous PET/MR Imaging
14:40-15:10  Jae Sung Lee (Seoul National University & Brightonix Imaging, Korea)
### DAILY PROGRAM

#### NOVEMBER 3 (Fri)

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<tr>
<td>15:10-15:40</td>
<td>SY05-3</td>
<td>Exploring New and Innovative RF Coil Designs for Diverse Applications</td>
<td>Jose Daniel Hernandez Chang (Gachon University, Korea)</td>
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<td>14:10-15:40</td>
<td>[SY06] Breast MRI Screening (Eng.)</td>
<td>New Paradigm for Tailored Breast Cancer Screening including MRI</td>
<td>Woo Kyung Moon (Seoul National University Hospital, Korea) Min Jung Kim (Severance Hospital, Korea) Vivian Youngjean Park (Severance Hospital, Korea) Taro Takahara (Tokai University School of Medicine, Japan) Su Hyun Lee (Seoul National University Hospital, Korea)</td>
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<td>14:10-15:40</td>
<td>[SY07] MSK 2: Hot Topics in Musculoskeletal MRI (Eng.)</td>
<td>AI-based Diagnosis in Musculoskeletal MRI</td>
<td>Benjamin Fritz (Balgrist University Hospital Zurich, Switzerland)</td>
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<tr>
<td>14:10-15:40</td>
<td>[SY07] MSK 2: Hot Topics in Musculoskeletal MRI (Eng.)</td>
<td>Zero Time-to-Echo Imaging in Musculoskeletal System</td>
<td>Takatoshi Aoki (University of Occupational and Environmental Health, Japan)</td>
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<tr>
<td>15:40-16:00</td>
<td>Agora Lecture (Eng.)</td>
<td>AI-based Neuroimaging in the Alzheimer's Paradigm Shift Era</td>
<td>Junkil Been (Neurophet Inc., Korea)</td>
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</table>
DAILY PROGRAM
November 3 (Fri)

15:40-16:00  Break

16:00-17:30  [SY08] Neuro 1: Harnessing the Future: State-of-the-Art MRI for Clinical Excellence (Eng.)  
Vista 1

Chairs  Seung-Koo Lee (Severance Hospital, Korea)  
        Sung Tae Kim (Samsung Medical Center, Korea)

SY08-1  T2-Flair Mismatch Sign: Story of a Highly Specific Imaging Sign  
16:00-16:30  Rajan Jain (NYU Grossman School of Medicine, USA)

SY08-2  Myelin Imaging in Clinical Radiology  
16:30-17:00  Yangsean Choi (Asan Medical Center, Korea)

SY08-3  Stroke Imaging: Focus on MRI  
17:00-17:30  Byungjun Kim (Korea University Anam Hospital, Korea)

16:00-16:40  [PP01] Advanced MR Power Pitch (Eng.)  
Vista 2

Chairs  Pan Ki Kim (Phantomics, Korea)  
        Kanghyun Ryu (Artificial Intelligence and Robotics Institute, KIST, Korea)

PP01-1  Automated MR Sequence Design Using Sequence Search: Achieving Objectives in Spin-Echo, Inversion Recovery and Contrast  
16:00-16:02  Rokgi Hong, Hongjun An, Sooyeon Ji, Jongho Lee  
Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea

PP01-2  Improving Topup Algorithm by Single K-Space(TASK) for Single-Shot EPI Distortion Correction by Iterative Procedure Including Location-Dependent Uniformity Correction  
16:02-16:04  Seon-Ha Hwang
d, Hyun-Soo Lee
, Seung Hong Choi
, Sung-Hong Park
1  
1 Department of Bio and Brain Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea  
2 Siemens Healthineers, Seoul, Korea  
3 Department of Radiology, Seoul National University College of Medicine, Seoul, Korea
DAILY PROGRAM

NOVEMBER 3 (Fri)

PP01-3  **AI-Based Approach for Reliable Brain Tumors Segmentation Through Synthesis of Missing MRI Sequences**
16:04-16:06
Abdulkhalek Al-Fakih¹, Abdullah Shazly¹, Abbas Mohammed¹, Mohammed Mostafa¹, Meena Makary¹,², Mohammed Al-Masni³
¹ Systems and Biomedical Engineering, Faculty of Engineering, Cairo University, Cairo, Egypt
² MGH/HST Athinoula A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, MA, United States
³ Department of Artificial Intelligence, Sejong University, Seoul, Korea

PP01-4  **Deep Learning Enhances the Reliability of Dynamic Contrast-Enhanced MRI in Diffuse Gliomas: Bypassing Post-Processing and Providing Uncertainty Maps**
16:06-16:08
Haneol Lee², Kyu Sung Choi¹, Jaejun Yoo², Seung Hong Choi¹, Youngwook Lyoo¹
¹ Department of Radiology, Seoul National University Hospital, Seoul, Korea
² Graduate School of AI, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea

PP01-5  **Automatic Optimization of Multi-Loss Weights for MR Image Synthesis Using Coefficient of Variation Analysis**
16:08-16:10
Woo Jin Chung¹, Dae Hyeon Choe¹, Yoonho Nam¹, Ho-Joon Lee², Yeonah Kang²
¹ Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea
² Department of Radiology, Inje University College of Medicine, Haeundae Paik Hospital, Busan, Korea

PP01-6  **Reproduction of Direct Imaging of Neuronal Activity (DIANA) in Mice at 11.7T**
16:10-16:12
Phan Tan Toi¹, Sophie Malaquin², Jae-Youn Keum³, Cameron Hery², Eloise Mougèl³, Celine Baligand³, Julien Valette², Jang-Yeon Park³,4
¹ Institute for Intelligent Precision Healthcare, Sungkyunkwan University, Suwon, Korea
² Laboratoire des Maladies Neurodégénératives, Université Paris-Saclay, Commissariat à l’Energie Atomique et aux Energies Alternatives (CEA), Centre National de la Recherche Scientifique (CNRS), Molecular Imaging Research Center (MIRCen), Fontenay-aux-Roses, France
³ Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea
⁴ Department of Intelligent Precision Healthcare Convergence, Sungkyunkwan University, Suwon, Korea

PP01-7  **No Replication of Direct Neuronal Activity-Related (DIANA) fMRI in Anesthetized Mice**
16:12-16:14
Sanghan Choi¹, Geun Ho Im¹, Sangcheon Choi², Xin Yu², Peter a Bandettini³, Ravi S Menon⁴, Seong-Gi Kim¹,³,⁵
DAILY PROGRAM

November 3 (Fri)

1 Center for Neuroscience Imaging Research, Institute for Basic Science, Suwon, Korea
2 Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, Massachusetts, United States
3 Section on Functional Imaging Methods and Functional MRI Facility, NIH, Bethesda, MD, United States
4 Centre for Functional and Metabolic Mapping, Western University, London, Ontario N6A 5B7, Canada
5 Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea

PP01-8 Three-Dimensional fMRI with Reduced FOV
16:14-16:16 Xiaohong Joe Zhou1,2,3, Qingfei Luo1, Guangyu Dan1,3, Kaibao Sun1
1 Center for MR Research, University of Illinois College of Medicine, Chicago, Illinois, United States
2 Department of Radiology, University of Illinois College of Medicine, Chicago, Illinois, United States
3 Department of Biomedical Engineering, University of Illinois Chicago, Chicago, Illinois, United States

PP01-9 A χ-separation Atlas for Mapping Normative Iron and Myelin Distributions in the Human Brain
16:16-16:18 Kyeongseon Min1, Kyung Won Chang2, Soohwa Song3, Dong Hoon Shin3, Beomseok Sohn4, Phil Hyu Lee5, Woo Jung Kim6,7, Chae Jung Park8, Na-Young Shin9, Minjun Kim1, Hee-eong-Geol Shin10,11, Jongho Lee1
1 Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea
2 Department of Neurosurgery, Severance Hospital, Seoul, Korea
3 Heuron Co., Ltd, Korea
4 Department of Radiology, Severance Hospital, Seoul, Korea
5 Department of Neurology, Severance Hospital, Seoul, Korea
6 Institute of Behavioral Sciences in Medicine, Yonsei University College of Medicine, Seoul, Korea
7 Department of Psychiatry, Yongin Severance Hospital, Yongin, Korea
8 Department of Radiology, Yongin Severance Hospital, Yongin, Korea
9 Department of Radiology, The Catholic University of Korea, Seoul, Korea
10 Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, United States
11 F.M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, United States
DAILY PROGRAM

NOVEMBER 3 (Fri)

PP01-10 Simultaneous Acquisition of Temperature and Water Content Electrical Property Maps
16:18-16:20

Jinwoo Hwang\textsuperscript{1,2}, Sangwoo Kim\textsuperscript{4}, In Young Kim\textsuperscript{1}, Sukhoon Oh\textsuperscript{3}

\textsuperscript{1} Biomedical Engineering, Hanyang University, Seoul, Korea
\textsuperscript{2} MR Clinical Science, Philips Korea, Seoul, Korea
\textsuperscript{3} RF Research and Engineering, Korea Basic Science Institute, Cheongju, Korea
\textsuperscript{4} Radiological Science, Daewon University College, Jecheon, Chungcheongbuk-do, Korea

PP01-11 Data-Driven Based Electrical Conductivity Reconstructions with Triplane Gradient Ensemble of B1 Phase
16:20-16:22

Chan-Hee Park\textsuperscript{1}, Kyu-Jin Jung\textsuperscript{2}, Chuanjiang Cui\textsuperscript{2}, Stefano Mandija\textsuperscript{3,4}, Thierry Meerbothe\textsuperscript{3,4}, Mina Park\textsuperscript{5}, Yoonho Nam\textsuperscript{1}, Dong-Hyun Kim\textsuperscript{2}

\textsuperscript{1} Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin-si, Korea
\textsuperscript{2} Department of Electrical and Electronic Engineering, Yonsei University, Seoul, Korea
\textsuperscript{3} Department of Radiotherapy, UMC Utrecht, Utrecht, Netherlands
\textsuperscript{4} Computational Imaging Group for MR Therapy and Diagnostics, UMC Utrecht, Utrecht, Netherlands
\textsuperscript{5} Department of Radiology, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

PP01-12 Deep Learning for Automated Quantification of Cerebral Blood Flow from Phase-Contrast MRI
16:22-16:24

Jinwon Kim\textsuperscript{1}, Hyebin Lee\textsuperscript{2}, Sungsuk Oh\textsuperscript{3}, Jinhee Jang\textsuperscript{2}, Hyunyeol Lee\textsuperscript{1}

\textsuperscript{1} School of Electronic and Electrical Engineering, Kyungpook National University, Daegu, Korea
\textsuperscript{2} Department of Radiology, Seoul St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea
\textsuperscript{3} Medical Device Development Center, Daegu-Gyeongbuk Medical Innovation Foundation (K-MEDI hub), Daegu, Korea

PP01-13 Robust Resolution Improvement of 3D UTE-MR Angiogram Data Using Super-Resolution Convolutional Neural Networks
16:24-16:26

Abel Worku Tessema\textsuperscript{1}, Seokha Jin\textsuperscript{1}, Yelim Gong\textsuperscript{2}, HyungJoon Cho\textsuperscript{1}

\textsuperscript{1} Department of Biomedical Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea
\textsuperscript{2} Department of Medical Information, Chung-Ang University Gwangmyeong Hospital, Gyeonggi-do, Korea
DAILY PROGRAM

November 3 (Fri)

PP01-14  Improved PVS Segmentation Using T1-Weighted Image: Comparison with T2-Weighted Image-Based Segmentation
16:26-16:28  Junghwa Kang, Yoonho Nam
Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea

PP01-15  Physics Informed Vessel Segmentation Algorithm for Chi-Separation and Its Application for the Accurate Image Analysis
16:28-16:30  Taechang Kim, Sooyeon Ji, Jonghyo Youn, Minjun Kim, Jongho Lee
Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea

PP01-16  Continual Breast Segmentation Approach for Adaptation to MRI Manufacturer Shift
16:30-16:32  Dayeon Bak¹, Ji Hyun Park¹, Wooseung Kim¹, Ga Eun Park², Sung Hun Kim², Yoonho Nam¹
¹ Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea
² Department of Radiology, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea

16:00-17:30 [MS04] Chest: Potential Lung MR and Practical Mediastinal MR (Eng.)  Vista 3

Chairs  Woocheol Kwon (Ewha Womans University Seoul Hospital, Korea)
         Kyung Nyeo Jeon (Gyeongsang National University Changwon Hospital, Korea)

MS04-1  Proton MR with Phase-Resolved Functional Lung (PREFUL) Imaging
16:00-16:30  Andreas Voskrebenzev (Hannover Medical School, Germany)

MS04-2  Bridge over Troubled Mediastinal Masses: Case-based Review with a Focus on MRI
16:30-17:00  Won Gi Jeong (Chonnam National University Hwasun Hospital, Korea)

MS04-3  Role of MRI in Evaluation of Pulmonary Airspace Diseases
17:00-17:10  Rajul Rastogi, Vivek Bhandari
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India
DAILY PROGRAM

NOVEMBER 3 (Fri)

MS04-4 3D Pulmonary Perfusion-Weighted Mapping Using 3D Ultrashort Echo-Time Imaging
17:10-17:20 Hyeonha Kim¹,², Hye Yun Park³, Seokwon Lee², Jinil Park², Ho Yun Lee⁴,⁵, Jang-Yeon Park¹,²
¹ Department of Intelligent Precision Healthcare Convergence, Sungkyunkwan University, Suwon, Korea
² Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea
³ Division of Pulmonary and Critical Care Medicine, Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea
⁴ Department of Radiology and Center for Imaging Science, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea
⁵ Department of Health Sciences and Technology, Samsung Advanced Institute for Health Sciences & Technology (SAIHST), Sungkyunkwan University, Seoul, Korea

16:00-17:30 [Joint02] KSVMI-KSMRM Joint Session (Kor.) Grand 1

Chairs Youngwon Lee (Chungnam National University, Korea)
Dongkyu Kim (Daegu-Gyeongbuk Medical Innovation Foundation (K-Medihub), Korea)

Joint02-1 Exploring Brain Function in Non-Human Primates: An Integrated fMRI Approach
16:00-16:22 EunHa Baeg (Incheon National University, Korea)

Joint02-2 The Effect of Deep Learning-based Reconstruction for Brain and Thoracolumbar MRI in Dogs
16:22-16:44 Kija Lee (College of Veterinary Medicine, Kyungpook National University, Korea)

Joint02-3 Developing Small Canine MRI Brain Templates: Streamlining Standardization and Automatic Parcellation Protocols for Veterinary MRI Research
16:44-17:06 Hwon Heo (Department of Convergence Medicine, University of Ulsan College of Medicine, Korea)

Joint02-4 Utilization of MRI Analysis to Evaluate the Effectiveness of Chondrogenesis in a Swine Cartilage Defect Model
17:06-17:28 Sung Suk Oh (K-MEDI hub (Daegu-Gyeongbuk Medical Innovation Foundation), Korea)
DAILY PROGRAM

November 3 (Fri)

16:00-17:30 [SY09] GU: MRI Protocol for Prostate Cancer (Eng.) Grand 2+3

Chairs
Sung Bin Park (Chung-Ang University Hospital, Korea)
Suk Hee Heo (Chonnam National University Hwasun Hospital, Korea)

SY09-1 Magnetic Resonance Spectroscopy – Application in Prostate Cancer
16:00-16:30 Haesun Choi (The University of Texas MD Anderson Cancer Center, USA)

SY09-2 MRI Protocol for Prostate Cancer - Dynamic Contrast Enhanced Images and Recent Advanced Techniques
16:30-17:00 Chul-min Lee (Hanyang University Seoul Hospital, Korea)

SY09-3 T2 Weighted and Diffusion Weighted Image
17:00-17:30 Jung Jae Park (Chungnam National University Hospital, Korea)

16:00-16:40 [PP02] MR Engineering Power Pitch (Eng.) Grand 4+5

Chairs
Kyoung-Nam Kim (Gachon University, Korea)
Sung Suk Oh (K-MEDI hub (Daegu-Gyeongbuk Medical Innovation Foundation), Korea)

PP02-1 Comparison of Image Generation Networks in Virtual Fat Suppressed T2-Weighted Cervical MR Images
16:00-16:05 Tomoki Aizawa, Norio Hayashi, Teresa Ichiki, Ami Masuda, Haruyuki Watanabe, Toshihiro Ogura
Department of Radiological Technology, Gunma Prefectural College of Health Sciences, Kamio-kimachi, Maebashi Shi, Japan

PP02-2 Denoising 4D Flow MRI Data Using Singular Value Decomposition with Spliting and Ovelaping
16:05-16:10 Seungmin Kang1, Simon Song1, Don-Gwan An1, Hojin Ha2, Dong Hyun Yang3, Ilhoon Jang1
1 Department of Mechanical Engineering, Hanyang University, Seoul, Korea
2 Department of Mechanical and Biomedical Engineering, Kangwon National University, Gang-won-do, Korea
3 Department of Radiology, Asan Medical Center, Seoul, Korea
NOVEMBER 3 (Fri)

**PP02-3**  Continuous Spatio-Temporal Representation with Implicit Neural Representation and Neural Ordinary Differential Equation in Dynamic Susceptibility Contrast MRI  
16:10-16:15  
Junhyeok Lee, Kyu Sung Choi, Inpyeong Hwang, Seung Hong Choi, Jin Wook Chung, Jung Hyun Park  
*Department of Radiology, Seoul National University Hospital, Seoul, Korea*

**PP02-4**  Strategy for Improving Deep Learning Performance in Diagnosis of Autism Spectrum Disorder from Volumetric MRI  
16:15-16:20  
Wonjun Son¹, So Mi Lee², Hyunyeol Lee¹  
¹ School of Electronic and Electrical Engineering, Kyungpook National University, Daegu, Korea  
² Department of Radiology, Kyungpook National University Hospital, Daegu, Korea

**PP02-5**  Reducing RF-Induced Heating in DBS Patient at 7T MRI Using Geometrically Adjustable RF Head Coil  
16:20-16:25  
Youngdae Cho¹, Hyoungsuk Yoo¹²  
¹ Electronic Engineering, Hanyang University, Seoul, Korea  
² Biomedical Engineering, Hanyang University, Seoul, Korea

**PP02-6**  Compact Antenna for High-Resolution Intravascular Catheter Tracking and Imaging at 3T MRI  
16:25-16:30  
Shahzeb Hayat¹, Hyoungsuk Yoo¹²  
¹ Electronic Engineering, Hanyang University, Seoul, Korea  
² Biomedical Engineering, Hanyang University, Seoul, Korea

16:00-17:30  **Poster Q&A Session** (with Beverage)

18:00-  **Banquet**

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**Grand Round**  
(B1F)

**Walker Hall**  
(1F)
## DAILY PROGRAM

### NOVEMBER 4 (Sat)

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<td>08:00-08:30</td>
<td><strong>[RS01] Clinical Case Presentation</strong> <em>(Kor.)</em></td>
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<td>Chair</td>
<td>Sung Jun Ahn (Gangnam Severance Hospital, Korea)</td>
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<tr>
<td><strong>RS01-1</strong></td>
<td>A Huge Gastric Angiolipoma Presenting with Acute Upper Gastrointestinal Hemorrhage: A Case Report</td>
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<td>Joo Hyeok Choi, Sung Bin Park, Hyun Jeong Park, Eun Sun Lee, Byung Ihn Choi</td>
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<td><em>Radiology, Chung-Ang University Hospital, Seoul, Korea</em></td>
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<td>08:04-08:08</td>
<td><strong>RS01-2</strong> Clinical Utility of Breast MRI in Occult Breast Cancer Presenting with Axillary Nodal Metastasis</td>
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<td>Jeongyun Kim, Youngjean Park</td>
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<td></td>
<td><em>Department of Radiology, Severance Hospital, Seoul, Korea</em></td>
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<tr>
<td>08:08-08:12</td>
<td><strong>RS01-3</strong> Cardiac Magnetic Resonance Imaging of Burned-Out Hypertrophic Cardiomyopathy</td>
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<td>Minha Hwang, Suji Lee</td>
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<td><em>Department of Radiology, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea</em></td>
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<tr>
<td>08:12-08:16</td>
<td><strong>RS01-4</strong> Incidental Diagnosis of Ovarian Torsion due to a Krukenberg Tumor Originating from Gastric Cancer: A Case Report</td>
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<td>Jung Joo Hong, Sung Bin Park, Hyun Jeong Park, Eun Sun Lee, Min Ju Kim, Byung Ihn Choi</td>
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<td></td>
<td><em>Department of Radiology, Chung-Ang University Hospital, Seoul, Korea</em></td>
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<td>08:16-08:20</td>
<td><strong>RS01-5</strong> MR Finding of a Case of Progressive Multifocal Leukoencephalopathy</td>
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<td>Jungmin Lee, Hui Joong Lee</td>
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<td><em>Radiology, Kyungpook National University Hospital, Daegu, Korea</em></td>
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<td>08:20-08:24</td>
<td><strong>RS01-6</strong> Incarcerated Uterus on Placenta MRI</td>
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<td>Hyunho Cha, Hyun Ji Lim</td>
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<td></td>
<td><em>Department of Radiology, Severance Hospital, Seoul, Korea</em></td>
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<td>08:24-08:28</td>
<td><strong>RS01-7</strong> Significance of Careful Examination of T1 Sequence Image for Recognizing Hematologic Malignancy</td>
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<td>Changsoo Woo, Ji Soo Kim</td>
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<td><em>Department of Radiology, Severance Hospital, Seoul, Korea</em></td>
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DAILY PROGRAM

NOVEMBER 4 (Sat)

08:30-10:00  [SY10] Neuro 2: Next Frontiers: Unraveling the Emerging Techniques (Kor.)  

Vista 1

Chairs: Kookjin Ahn (The Catholic University of Korea, Seoul St. Mary's Hospital, Korea)  
Chi-Hoon Choi (Chungbuk National University, Korea)

SY10-1  Hyperpolarized 13C MRI: Deciphering the Metabolic Interplay: Diabetes, Diet, Brain Function, and Advanced Imaging Insights
08:30-09:00  Ho-Taek Song (Severance Hospital, Yonsei University College of Medicine, Korea)

SY10-2  AI in Neuro-Medical Imaging
09:00-09:30  Jong Chul Ye (Graduate School of AI, KAIST, Korea)

SY10-3  Nuclear Medicine in Neuro Field
09:30-10:00  Yoo Sung Song (Seoul National University Bundang Hospital, Korea)

08:30-10:00  [SY11] MRE 3: MR Engineering 2 (Kor.)  

Vista 2

Chairs: Chi-Woong Mun (Inje University, Korea)  
Chulhyun Lee (Korea Basic Science Institute, Korea)

SY11-1  Laminar fMRI Using Spin-Echo Type Sequences
08:30-08:50  SoHyun Han (Korea Basic Science Institute, Korea)

SY11-2  Technical Principles and Applications of MR-Guided Focused Ultrasound
08:50-09:10  Kisoo Kim (University of California, San Francisco, USA)

SY11-3  Updates in 1.5T MRI-Guided Adaptive Radiotherapy
09:10-09:30  Ho Lee (Yonsei Cancer Center, Yonsei University College of Medicine, Korea)

SY11-4  Present and Future of Extreme High-Field (11.4T) MRI System
09:30-09:50  Jun-Young Chung (Gachon University College of Medicine, Korea)
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08:30-10:00  [SY12] Abdomen 3: Abbreviated MRI for HCC Surveillance or Follow Up (Eng.)  Vista 3

Chairs  Myeong-Jin Kim (Severance Hospital, Korea)
So Yeon Kim (Asan Medical Center, Korea)

SY12-1  MAGNUS-HCC Study
08:30-08:50  Joon-Il Choi (Seoul St. Mary's Hospital, Korea)

SY12-2  Non-Contrast MRI Surveillance of HCC
08:50-09:10  Hyungjin Rhee (Severance Hospital, Korea)

SY12-3  Follow-Up Using Noncontrast MRI after Curative Treatment for HCC
09:10-09:30  Dong Ho Lee (Seoul National University Hospital, Korea)

SY12-4  Real World Experience of Noncontrast MRI
09:30-09:50  Hyun Kyung Yang (Severance Hospital, Korea)

08:30-10:00  [SY13] QSM: Quantitative Susceptibility Mapping for Clinicians (Kor.)  Grand 1

Chairs  Sung Jun Ahn (Gangnam Severance Hospital, Korea)
Yoonho Nam (Hankuk University of Foreign Studies, Korea)

SY13-1  Principles and Recent Updates of QSM
08:30-09:00  Sooyeon Ji (Seoul National University, Korea)

SY13-2  Walkthrough of QSM Processing
09:00-09:30  Junhyeok Lee (Hankuk University of Foreign Studies/ Seoul National University Hospital, Korea)

SY13-3  Clinical Applications and Caveats
09:30-10:00  Jinhee Jang (The Catholic University of Korea, Seoul St. Mary's Hospital, Korea)
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<td>08:30-10:00</td>
<td><strong>[SY14] MD-PhD Collaboration 1: Recent Advances in Parkinson’s Disease Imaging</strong> (Eng.)</td>
<td>Grand 2+3</td>
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<tr>
<td>Chairs</td>
<td>Sung-Min Gho (Heuron, Korea) Koung Mi Kang (Seoul National University Hospital, Korea)</td>
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<tr>
<td>SY14-1</td>
<td>Diagnostic MRI of the Substantia Nigra in Parkinsonism: Overview</td>
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<td>08:30-08:50</td>
<td>Eung Yeop Kim (Samsung Medical Center, Korea)</td>
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<tr>
<td>SY14-2</td>
<td>Technical Advances in Imaging Nigral Hyperintensity and Neuromelanin in Substantia Nigra</td>
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<td>08:50-09:10</td>
<td>Jongho Lee (Seoul National University, Korea)</td>
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<tr>
<td>SY14-3</td>
<td>Post-Mortem Validations of Iron-related MR Imaging in Substantia Nigra</td>
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<td>09:10-09:30</td>
<td>HyungJoon Cho (UNIST, Korea)</td>
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<td>SY14-4</td>
<td>Midbrain Imaging for Parkinson's Disease: External Validation</td>
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<td>09:30-09:50</td>
<td>Chan Ling Ling (Singapore General Hospital, Singapore)</td>
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<td>08:30-10:00</td>
<td><strong>[SY15] Cardiovascular 1: Exploring the Mysteries of Myocarditis (through Cardiac MRI)</strong> (Eng.)</td>
<td>Grand 4+5</td>
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<td>Chairs</td>
<td>Sung Min Ko (Wonju Severance Christian Hospital, Korea) Eun Ju Chun (Seoul National University Bundang Hospital, Korea)</td>
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<tr>
<td>SY15-1</td>
<td>Review of CMR Findings in Parasitic Infections</td>
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<td>08:30-09:00</td>
<td>Kakuya Kitagawa (Mie University Graduate School of Medicine, Japan)</td>
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<tr>
<td>SY15-2</td>
<td>Myocarditis versus Post Vaccine Myocarditis</td>
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<td>09:00-09:30</td>
<td>Suyon Chang (Seoul St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Korea)</td>
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<tr>
<td>SY15-3</td>
<td>Advanced CMR in Myocarditis</td>
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<tr>
<td>09:30-10:00</td>
<td>Ji Won Lee (Pusan National University School of Medicine, Korea)</td>
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<td>10:00-10:30</td>
<td>Break</td>
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<tr>
<td>10:30-11:50</td>
<td>[PL03&amp;04] Plenary Lecture 3 &amp; 4 (Eng.)</td>
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<td>Chairs</td>
<td>Jung Hee Lee (Samsung Medical Center, Korea)</td>
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<td>Chi-Woong Mun (Inje University, Korea)</td>
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<tr>
<td>PL03</td>
<td>Deuterium Magnetic Resonance Imaging and Spectroscopy in Human Subjects</td>
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<tr>
<td>10:30-11:10</td>
<td>Richard Bowtell (University of Nottingham, UK)</td>
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<td>PL04</td>
<td>Low Molecular-weight MRI Theranostic Agents</td>
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<td>11:10-11:50</td>
<td>Yongmin Chang (Kyungpook National University, Korea)</td>
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<td>11:50-12:20</td>
<td>Break</td>
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<tr>
<td>Chair</td>
<td>Jongmin Lee (Kyungpook National University Hospital, Korea)</td>
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<tr>
<td>LS04-1</td>
<td>Sharing 3 Years’ Experience of AIR™ Recon DL in Daily Practice in Pediatric Imaging</td>
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<td>Young Hun Choi (Seoul National University Hospital, Korea)</td>
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<tr>
<td>LS04-2</td>
<td>MRI Redefined: Sonic DL™ Journey to Precision</td>
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<td>Ngenzi Pascal (GE HealthCare, USA)</td>
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<td>Chair</td>
<td>Ho Sung Kim (Asan Medical Center, Korea)</td>
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LS05-1  The Importance of Performance, Precision and Clinical Capabilities in 3.0T MRI
12:20-12:45  Frank G.C. Hoogenraad (Philips, Netherlands)

LS05-2  Conductivity Tensor Imaging (CTI): A Novel MR Imaging Paradigm and New Clinical Biomarker
12:45-13:10  Nitish Katoch (Philips Korea, Korea)

12:20-12:20  [LS06] Luncheon Symposium 6  (Eng.)
Chair  Jeong Min Lee (Seoul National University Hospital, Korea)

LS06-1  Deep-Learning Accelerated Abdominal MRI in Clinical Practice
12:20-12:40  Bohyun Kim (Seoul St. Mary’s Hospital, Korea)

LS06-2  Pushing the Limits of MRI with Latest Innovations in Hardware and Software
12:40-13:20  Gregor Thörmer (Siemens Healthineers, Germany)

13:00-13:50  총회 (Kor.) KSMRM 정회원 Only

13:20-13:50  Break

13:20-17:20  [KSMRM Educational Course] Tumor MR Imaging  (Kor.)
Chair  Taehoon Shin (Ewha Womans University, Korea)

교육01-1  Brain: Updated Imaging Findings of Gliomas according to the 2021 WHO Classification for Radiologists: Going Further than Adult-type Diffuse Gliomas
13:20-13:50  Yae Won Park (Yonsei University College of Medicine, Korea)
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NOVEMBER 4 (Sat)

Head and Neck
13:50-14:20
Min Kyoung Lee (Yeouido St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Korea)

Breast MRI for Breast Cancer: Basic to Update
14:20-14:50
Eun Ji Lee (Soonchunhyang University Seoul Hospital, Korea)

14:50-15:00
Q&A

15:00-15:10
Break

Tumor MR Imaging 2
Chair
Jang Gyu Cha (Soonchunhyang University Bucheon Hospital, Korea)

GI-Bowel
15:10-15:40
Nieun Seo (Severance Hospital, Korea)

GI-Hepatobiliary
15:40-16:10
Seo-Youn Choi (Samsung Medical Center, Korea)

MSK - Bone Tumor
16:10-16:40
Hye Jin Yoo (Seoul National University Hospital, Korea)

MSK - Soft Tissue
16:40-17:10
Joon-Yong Jung (Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Korea)

17:10-17:20
Q&A
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<td>13:50-15:20</td>
<td><strong>[SY16] AI Vendor Session</strong> <em>(Kor.)</em></td>
<td>Vista 1</td>
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<td><strong>Chairs</strong> Seung Hong Choi (Seoul National University College of Medicine, Korea) Sung Soo Ahn (Severance Hospital, Korea)</td>
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<td></td>
<td><strong>SY16-1</strong> Integrating AI-Driven MR Techniques into Clinical Research</td>
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<td>13:50-14:10</td>
<td>Yangsean Choi (Asan Medical Center, Korea)</td>
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<td><strong>SY16-2</strong> GE Session: <strong>SIGNA™ MR</strong>: Imaging at the Speed of Life</td>
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<td>14:10-14:30</td>
<td>Joonsung Lee (GE HealthCare, Korea)</td>
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<td><strong>SY16-3</strong> Siemens Session: Recent Update of AI in MRI</td>
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<td>14:30-14:50</td>
<td>InSeong Kim (Siemens Healthineers Ltd., Seoul, Korea)</td>
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<td><strong>SY16-4</strong> Philips Session: AI Powered MRI: Precise, Quantitative and Synthetic Imaging</td>
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<td>14:50-15:10</td>
<td>Jinwoo Hwang (Philips Korea, Korea)</td>
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<td>13:50-15:20</td>
<td><strong>[Joint03] CSMRM-KSMRM Joint Session</strong> <em>(Eng.)</em></td>
<td>Vista 2</td>
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<td><strong>Chairs</strong> Lan Zhang (The 1st Affiliated Hospital of Henan University of Chinese Medicine, China) Geon-Ho Jahng (Kyung Hee University Hospital at Gangdong, Korea)</td>
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<td><strong>Joint03-1</strong> Intramyocardial Hemorrhage in Acute Myocardial Infarction: The Mechanism and CMR Imaging</td>
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<td>13:50-14:08</td>
<td>Ting Liu (The First Affiliated Hospital of China Medical University, China)</td>
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<td><strong>Joint03-2</strong> Utilities of Magnetic Resonance Imaging in Mediastinal Tumors</td>
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<td>14:08-14:26</td>
<td>Chul Hwan Park (Gangnam Severance Hospital, Korea)</td>
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<td><strong>Joint03-3</strong> Quantitative Magnetic Resonance Neurography and It's Application in Autoimmune Nodopathy</td>
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<td>14:26-14:44</td>
<td>Anning Li (Qilu Hospital of Shandong University, China)</td>
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<td><strong>Joint03-4</strong> Update of Techniques in MSK MRI</td>
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<td>14:44-15:02</td>
<td>JeongAh Ryu (Hanyang University Guri Hospital, Korea)</td>
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Joint03-5  Advances in Magnetic Resonance Elastography of the Brain
15:02-15:20  Yu Shi (Shengjing Hospital of China Medical University, China)

13:50-15:20  [MS05] MSK 3: MR-Based Conductivity Imaging
(MS05) (Eng.)/(Kor.)

Chairs  Hee Jin Park (Kangbuk Samsung Hospital, Korea)
        Joon-Yong Jung (Seoul St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Korea)

MS05-1  MR Conductivity Imaging: Technical Perspective (E)
13:50-14:15  Dong-Hyun Kim (Yonsei University, Korea)

MS05-2  MR Conductivity Imaging: Radiologic Perspective (E)
14:15-14:40  Ji Hyun Lee (Samsung Medical Center, Korea)

MS05-3  How Can MRI and MR Myelography be Useful in Diagnosis and Localization of CSH Leakage in Spontaneous Intracranial Hypotension (SIH)? (E)
14:40-14:50  Da Sol Park, Seun Ah Lee, Jung-Ah Choi
Department of Radiology, Hallym University Dongtan Sacred Heart Hospital, Hwaseong, Korea

MS05-4  A Rare Case Report: Primary Bone Lymphoma in a Patient with Dual Primary Adenocarcinomas (K)
14:50-14:58  Jinhee Kim, Joohee Lee, Young Han Lee, Ho Taek Song
Department of Radiology, Severance Hospital, Seoul, Korea

MS05-5  Baxter’s Nerve Entrapment due to Lipoma Causing Abductor Digiti Minimi Atrophy (K)
14:58-15:06  Su Been Lee1, Sung Hye Koh1, In Jae Lee1, Jaehyung Lee2
1 Department of Radiology, Hallym University Sacred Heart Hospital, Anyang-si, Korea
2 Department of Orthopedic Surgery, Hallym University Sacred Heart Hospital, Anyang-si, Korea

MS05-6  A Case of Vanishing Bone Metastasis in Chemoport Inserted Patient (K)
15:06-15:14  Dowon Yoon, Choong Guen Chee, Eugene Lee, Joonwoo Lee
Seoul National University Bundang Hospital, Korea
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**MS05-7**  
**15:14-15:22**  
*Acute Meningomyeloradiculitis Caused by Varicella-Zoster Virus: A Case Report (K)*  
Ji-Ah Shin, Hee Dong Chae, Sung Hwan Hong, Ja-Young Choi, Hye Jin Yoo, Ji Seon Oh  
*Department of Radiology, Seoul National University Hospital and College of Medicine, Korea*

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**13:50-15:20**  
**[SY17] Cardiovascular 2: One Step Forward with Advanced Cardiac MRI** (Eng.)  
**Grand 1**

**Chairs**  
Jongmin Lee (Kyungpook National University Hospital, Korea)  
Dong Hyun Yang (Asan Medical Center, Korea)

**SY17-1**  
*From Manual to Automated: Innovations in Quantitative Analysis of Delayed-Enhanced Image in Cardiac MRI*  
13:50-14:20  
Pan Ki Kim (Phantomics, Korea)

**SY17-2**  
*Advancing Cardiovascular Research: Atlas-based, AI-assisted 4D Flow MRI Analysis of Hemodynamics*  
14:20-14:50  
Hojin Ha (Kangwon National University, Korea)

**SY17-3**  
*Advanced Cardiac MRI for the Management of Atrial Fibrillation*  
14:50-15:20  
Sung Ho Hwang (Korea University, Korea)

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**13:50-15:20**  
**[MS06] Molecular Session: Expanding the boundary of MR** (Eng.)  
**Grand 2+3**

**Chairs**  
Ho-Taek Song (Severance Hospital, Yonsei University College of Medicine, Korea)  
Min Kyoung Kang (KBIO Health NEC, Korea)

**MS06-1**  
*State-of-the-Art in Hyperpolarized 13C Metabolic MRI*  
13:50-14:25  
Peder Larson (University of California – San Francisco, USA)

**MS06-2**  
*Deep Learning-aided 1H-MRS of the Brain - Recent Advances and Applications*  
14:25-15:00  
Hyeonjin Kim (Seoul National University Hospital, Korea)
DAILY PROGRAM

NOVEMBER 4 (Sat)

MS06-3  Hypoxia-Responsive Luminescent CEST MRI Agent for in Vitro and in Vivo Tumor Detection and Imaging
15:00-15:10  Sanu Karan, Kwan Soo Hong
Research Center for Bioconvergence Analysis, Korea Basic Science Institute, Cheongju, Korea

MS06-4  Multifunctional Porphyrin Based Gadolinium Complex as Promising Theranostic Agents
15:10-15:20  Soyeon Kim, Ji-Ung Yang, Kyo Chul Lee, Yong Jin Lee, Jung Young Kim, Ji-Ae Park
Division of Applied RI, Korea Institute of Radiological & Medical Sciences (KIRAMS), Seoul, Korea

15:20-15:40  Break

15:40-17:10  [SS02] Neuro Scientific Session 2  (Eng.)  Vista 1

Chairs  In Kyu Yu (Daejeon Eulji Medical Center, Eulji University, Korea)
        Sang-il Suh (Korea University Guro Hospital, Korea)

SS02-1  Development of Paired-CycleGAN-Based Deep Learning Algorithm for MRI Harmonization: Validation in Follow-Up MRI Evaluation in Patients with Brain Metastasis
15:40-15:50  Hyeon-Ung Choi¹, Ho-Sung Hwang¹, Seung-Hong Choi¹,², Roh-Eul Yoo¹,², Joon-Kyung Seon³,⁴, Hyun-Jae Jeong³
¹ College of Medicine, Seoul National University, Jongro-gu, Seoul, Korea
² Department of Radiology, Seoul National University Hospital, Jongro-gu, Seoul, Korea
³ School of Biomedical Engineering, Korea University, Seongbuk-gu, Seoul, Korea
⁴ Department of Artificial Intelligence, Korea University, Seongbuk-gu, Seoul, Korea

SS02-2  Development of Paired-CycleGAN-Based Deep Learning Algorithm for MRI Harmonization: Validation in Follow-Up MRI Evaluation in Post-Treatment Glioma Patients
15:50-16:00  Jinhyung Lee¹, Kanghyun Kim¹, Roh-Eul Yoo¹,², Seung Hong Choi¹,², Joon-Kyung Seong³, Hyun-Woo Lim³
¹ College of Medicine, Seoul National University, Daehak-ro 101, Jongno-gu, Seoul, Korea
² Department of Radiology, Seoul National University Hospital, Daehak-ro 101, Jongno-gu, Seoul, Korea
³ School of Biomedical Engineering, Korea University, 145 Anam-ro, Seongbuk-gu, Seoul, Korea
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NOVEMBER 4 (Sat)

SS02-3 
Comparative Study of sLASEr and PRESS Techniques in Magnetic Resonance Spectroscopy of Normal Brain

16:00-16:10 Shin Ku Kim, Yun Ah Oh, Eun Hee Seo, Chang Min Dae, Yun Jung Bae

Department of Radiology, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, Korea

SS02-4 
Fast SMWI via Denoising for Nigral Hyperintensity Detection in Parkinson’s Disease

16:10-16:20 Jonghyo Youn\textsuperscript{1}, Juhyung Park\textsuperscript{1}, Soyeon Ji\textsuperscript{1}, Hongjun An\textsuperscript{1}, Hwan Heo\textsuperscript{2}, Myeongoh Lee\textsuperscript{2}, Soohwa Song\textsuperscript{2}, Eung Yeop Kim\textsuperscript{3}, Jongho Lee\textsuperscript{1}

\textsuperscript{1} Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea
\textsuperscript{2} Heuron Co.Ltd., Incheon, Korea
\textsuperscript{3} Department of Radiology, Samsung Medical Center, Seoul, Korea

SS02-5 
Link between Hippocampal BBB Alterations and Cognitive Decline in Elderly: A Longitudinal DCE Study

16:20-16:30 Se Jin Kim\textsuperscript{1}, Chang Mok Im\textsuperscript{2}, Byeong Kyu Park\textsuperscript{1}, Yeonsil Moon\textsuperscript{3}, Hee-Jin Kim\textsuperscript{4}, Hyeon Woo Jung\textsuperscript{2}, Won-Jin Moon\textsuperscript{1}

\textsuperscript{1} Department of Radiology, Konkuk University, Seoul, Korea
\textsuperscript{2} Department of Medicine, Konkuk University, Seoul, Korea
\textsuperscript{3} Department of Neurology, Konkuk University, Seoul, Korea
\textsuperscript{4} Department of Neurology, Hanyang University, Seoul, Korea
\textsuperscript{5} Department of Nuclear Medicine, Konkuk University, Seoul, Korea

SS02-6 
Brain Glymphatic Flow Assessment Using Diffusion-Tensor MRI and Its Association with CSF Space Volume

16:30-16:40 Kuk Jin Kim, Mina Park, Bio Joo, Sung Jun Ahn, Sang Hyun Suh

Radiology, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

SS02-7 
Gray-White Matter Boundary Z-Score and Volume as Imaging Biomarkers of Alzheimer’s Disease

16:40-16:50 Yunan Tian\textsuperscript{1}, Jung-Hoon Oh\textsuperscript{1,2}, Hak Young Rhee\textsuperscript{1,3}, Soonchan Park\textsuperscript{1,4}, Chang-Woo Ryu\textsuperscript{1,4}, Ah Rang Cho\textsuperscript{3,5}, Geon-Ho Jahng\textsuperscript{1,4}

\textsuperscript{1} Medicine, Kyung Hee University College of Medicine, Seoul, Korea
\textsuperscript{2} Radiology, Kyung Hee University Hospital, Seoul, Korea
\textsuperscript{3} Neurology, Kyung Hee University Hospital at Gangdong, Seoul, Korea
\textsuperscript{4} Radiology, Kyung Hee University Hospital at Gangdong, Seoul, Korea
\textsuperscript{5} Psychiatry, Kyung Hee University Hospital at Gangdong, Seoul, Korea
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SS02-8  Artificial Intelligence in Identification of Clinical Significant Ventriculomegaly
16:50-17:00  Rajul Rastogi, Kunal Sehgal
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India

SS02-9  Beyond Traditional T1-Based Segmentation Models: Advancing Practicality through Exclusive T2-Fluid-Attenuated Inversion Recovery-Based Brain Volumetric Analysis Model
17:00-17:10  Hye Weon Kim¹, Zunhyan Rieu¹, Hyunji Lee¹, Min-Woo Lee¹, Jimin Kang¹, Won-Jin Moon²³
¹ Research Institute, Neurophet, Seoul, Korea
² Research Institute of Medical Science, Konkuk University of Department Medicine, Seoul, Korea
³ Department of Radiology, Konkuk University Medical Center, Seoul, Korea

15:40-17:10  [SY18] Meet the Experts Session (Kor.)  Vista 2
Chairs  HyungJoon Cho (UNIST, Korea)
         Chaejoon Cheong (Korea Basic Science Institute, Korea)

SY18-1  Fat Suppression and Quantification in Abdominal MRI
15:40-16:00  Hokun Kim (The Catholic University of Korea, Seoul St. Mary’s Hospital, Korea)

SY18-2  Introduction to FreeSurfer & Its Application for Alzheimer’s Study
16:00-16:20  Ikbeom Jang (Hankuk University of Foreign Studies, Korea)

SY18-3  Resting-State fMRI for Clinical Applications
16:20-16:40  Joon Yul Choi (Yonsei University, Korea)

SY18-4  Surface-based Techniques for Brain Shape Analysis
16:40-17:00  Ilwoo Lyu (UNIST, Korea)

15:40-17:10  [SY19] Quantitative MRI Session (Eng.)  Vista 3
Chair  Sung-Hong Park (KAIST, Korea)

SY19-1  MR Relaxometry Methods
15:40-16:05  Cheng-Chieh Cheng (National Sun Yat-sen University, Chinese Taipei)
DAILY PROGRAM

NOVEMBER 4 (Sat)

**SY19-2**  
Clinical Application of MR Fingerprinting  
16:05-16:30  
Dongyeob Han (Siemens Healthineers Ltd., Korea)

**SY19-3**  
Vessel Distribution Imaging  
16:30-16:50  
SoHyun Han (Korea Basic Science Institute, Korea)

**SY19-4**  
Cerebral Perfusion Mapping by BOLD-DSC MRI  
16:50-17:10  
Dongkyu Lee (UNIST, Korea)

15:40-17:10  
[Joint04] KSMRT-KSMRM Joint Session:  
MR Safety (Kor.)

Chairs  
Seon Wook Yang (Asan Medical Center, Korea)  
Ho Sung Kim (Asan Medical Center, Korea)

**Joint04-1**  
Systematization and Computerization of MR Safety Management Process  
15:40-16:00  
Kyoojin Yeon (Samsung Medical Center, Korea)

**Joint04-2**  
The Risks and Limitations of Medical Devices in MRI Environments  
16:00-16:20  
Jin Seok Park (Samsung Medical Center, Korea)

**Joint04-3**  
 자기공명영상 안전관리 – 주요 안전 이슈 및 원내 지침 소개  
16:20-16:40  
Inpyeong Hwang (Seoul National University Hospital, Korea)

**Joint04-4**  
MRI Mechanical and RF (SAR) Safety  
16:40-17:00  
Sukhoon Oh (Korea Basic Science Institute, Korea)

15:40-17:10  
[SY20] MD-PhD Collaboration 2 (Kor.)

Chairs  
Leonard Sunwoo (Seoul National University Bundang Hospital, Korea)  
Jae Jun Lee (KBIO Health, Korea)

**SY20-1**  
Building a Paired Ultrahigh Resolution in-vivo Human Whole Brain MRI Dataset: An MD-PhD Collaboration  
15:40-16:00  
Youho Myong (Seoul National University College of Medicine, Korea)
DAILY PROGRAM

NOVEMBER 4 (Sat)

SY20-2  KBSI-Hospital Joint Research Cooperation
16:00-16:20  Jee-Hyun Cho (Korea Basic Science Institute, Korea)

SY20-3  Deep Learning–based Reconstruction for 3D Volumetric Brain MRI: Qualitative and Quantitative Assessment
16:20-16:40  Chae Jung Park (Yonsei University College of Medicine, Yongin Severance Hospital, Korea)

SY20-4  Impact of SmartSpeed AI Reconstruction on Quantitative Cortical Myelin Contents
16:40-17:00  Sang-Young Kim (Philips Healthcare, Korea)

17:10-17:30  Break

17:30-  Closing Ceremony  Vista 1
POSTERS

Printed Poster

Install  November 3 (Fri), 09:00 - 15:00
Poster Q&A with Beverage  November 3 (Fri), 16:00 - 17:30
Dismantle  November 4 (Sat), -18:00

E-Poster

Congress Website https://icmri.ksmrm.org/2023m/ → Program → E-Poster

Poster Code

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ABDOMEN

P-AB-01 **Contrast-Free Tumor Classification in Liver MRI**
Yasuo Takatsu\(^1\), Masafumi Nakamura\(^2\), Tosiaki Miyati\(^2\), Satoshi Kobayashi\(^2\)

\(^1\) Molecular Imaging, School of Medical Sciences, Fujita Health University, Toyoake, Aichi, Japan
\(^2\) Division of Health Sciences, Graduate School of Medical Sciences, Kanazawa University, Kanazawa, Ishikawa, Japan

P-AB-02 **Correlations between Apparent Diffusivity Coefficient (ADC) and Intravoxel Incoherent Motion (IVIM) Parameters with Ki-67 Index in Gastric Adenocarcinoma**
Letian Yuan

Department of Radiology, Shandong Provincial Hospital, Jinan, China

P-AB-03 **MRI-Based Radiomics Analysis for Differentiation Degree of Gastric Cancer**
Letian Yuan

Department of Radiology, Shandong Provincial Hospital, Jinan, China

P-AB-04 **Development of a Quantification Software for Kurtosis and Heterogeneity Assessment in MR Image and Its Clinical Application in the Cirrhotic Liver**
Tae-Hoon Kim\(^1\), Chang-Won Jeong\(^1\), Chungsub Lee\(^1\), Sihyeong Noh\(^1\), Dong Wook Lim\(^1\), Jin Woong Kim\(^2\), Hyung Joong Kim\(^3\), Youe Ree Kim\(^4\), Young Hwan Lee\(^4\)

\(^1\) Medical Convergence Research Center, Wonkwang University, Iksan, Korea
\(^2\) Radiology, Chosun University College of Medicine, Gwangju, Korea
\(^3\) Biomedical Engineering, Kyung Hee University, Seoul, Korea
\(^4\) Radiology, Wonkwang University School of Medicine, Iksan, Korea

P-AB-05 **Kurtosis and Heterogeneity Analysis for Staging Hepatic Fibrosis in Chronic Liver Disease by Gadoxetic Acid-Enhanced MR Imaging**
Tae-Hoon Kim\(^1\), Chang-Won Jeong\(^1\), Jin Woong Kim\(^2\), Young Hwan Lee\(^2\), Youe Ree Kim\(^3\), Chungsub Lee\(^3\), Sihyeong Noh\(^1\), Dong Wook Lim\(^1\), Hyung Joong Kim\(^4\)

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\(^3\) Radiology, Wonkwang University School of Medicine, Iksan, Korea
\(^4\) Biomedical Engineering, Kyung Hee University, Seoul, Korea
POSTERS

P-AB-06  Liver Donor MRCP Technique Experience in Brilliant Hospital
Bayarsaikhan Munkhbat¹, Batsugar Munkhbat²
¹ Etugen University, Ulaanbaatar, Mongolia
² Radiology, Brilliant Hospital, Ulaanbaatar, Mongolia

P-AB-07  MRI Radiomics and Machine Learning for Prediction of Adherent Perinephric Fat
Duy Binh Le¹, Ho Seok Chung², Ilwoo Park³⁴⁵
¹ Department of Biomedical Sciences, Chonnam National University, Hwasun-gun, Jeollanam-do, Korea
² Department of Urology, Chonnam National University Hwasun Hospital, Hwasun-gun, Jeollanam-do, Korea
³ Department of Radiology, Chonnam National University Medical School and Hospital, Gwangju, Jeollanam-do, Korea
⁴ Department of Artificial Intelligence Convergence, Chonnam National University, Gwangju, Jeollanam-do, Korea
⁵ Department of Data Science, Chonnam National University, Gwangju, Jeollanam-do, Korea

P-AB-08  Application Value of ZOOMit DWI with Parallel Transmission Technique in Gastric Cancer Imaging, a Comparison with Conventional DWI
Pei Zhong Cao¹, Wei Yue Xu¹, Qiong Li¹, Na Na Sun¹, Qiu Xia Feng¹, Yi Cheng Hsu², Xi Sheng Liu¹
¹ Department of Radiology, The First Affiliated Hospital with Nanjing Medical University, Nanjing, China
² MR Collaboration, Siemens Healthineers Ltd., Shanghai, China

P-AB-09  Characterizing the Liver Microenvironment in an Orthotopic Hepatocellular Carcinoma Rat Model Using Magnetic Resonance Imaging
Yeon Ji Chae¹, Hwon Heo¹, Chul-Woong Woo², Sang-Tae Kim², Monica Young Choi², Yoonseok Choi³, Dong-Cheol Woo¹²
¹ Department of Convergence Medicine, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea
² Convergence Medicine Research Center, Asan Institute for Life Sciences, Asan Medical Center, Seoul, Korea
³ Medical Research Institute, Gangneung Asan Hospital, Gangneung-si, Gangwon-do, Korea
POSTERS

P-AB-10  Deep Learning Reconstruction of Free-Breathing Diffusion-Weighted Imaging of the Liver in Patients with Chronic Liver Disease: Comparison to Conventional Free-Breathing Acquisition
Jiyoung Yoon, So Hyun Park
Radiology, Gil Medical Center, Incheon, Korea

Yoonhee Lee, So Hyun Park
Radiology, Gil Medical Center, Incheon, Korea

P-AB-12  Hepatobiliary Phase Imaging in Cirrhotic Patients Using Compressed Sensing and Controlled Aliasing in Parallel Imaging Results in Higher Acceleration
Dong Hyuk Yang, So Hyun Park
Radiology, Gil Medical Center, Incheon, Korea

P-AB-13  Practical Experience of Liver Magnetic Resonance Imaging Techniques in Brilliant Hospital
Batsugar Munkhbat\textsuperscript{1,2}, Pavlov Evgyenii\textsuperscript{1}
\textsuperscript{1} Radiology, Brilliant Hospital, Ulaanbaatar, Mongolia
\textsuperscript{2} President, Mongolian Society of Radiological Technologists, Ulaanbaatar, Mongolia

P-AB-14  Evaluation of Obstructive Biliopathy by Postcontrast MRCP
Rajul Rastogi, Danish Lalwani, Vijai Pratap
Department of Radiodiagnosis, Teerthkinker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India

P-AB-15  Can Colorectal Diseases Be Accurately Evaluated by MRI?
Rajul Rastogi, Vaibhav Khare
Department of Radiodiagnosis, Teerthkinker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India
ADVANCED MR IMAGING

PP-AD-01  Automated MR Sequence Design Using Sequence Search: Achieving Objectives in Spin-Echo, Inversion Recovery and Contrast  
Rokgi Hong, Hongjun An, Sooyeon Ji, Jongho Lee  
*Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea*

PP-AD-02  Improving Topup Algorithm by Single K-Space(TASK) for Single-Shot EPI Distortion Correction by Iterative Procedure Including Location-Dependent Uniformity Correction  
Seon-Ha Hwang¹, Hyun-Soo Lee², Seung Hong Choi³, Sung-Hong Park¹  
¹*Department of Bio and Brain Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea*  
²*Siemens Healthineers, Seoul, Korea*  
³*Department of Radiology, Seoul National University College of Medicine, Seoul, Korea*

PP-AD-03  AI-Based Approach for Reliable Brain Tumors Segmentation Through Synthesis of Missing MRI Sequences  
Abdulkhalek Al-Fakih¹, Abdullah Shazly¹, Abbas Mohammed¹, Mohammed Mostafa¹, Meena Makary¹,², Mohammed Al-Masni³  
¹*Systems and Biomedical Engineering, Faculty of Engineering, Cairo University, Cairo, Egypt*  
²*MGH/HST Athinoula A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital Harvard Medical School, MA, United States*  
³*Department of Artificial Intelligence, Sejong University, Seoul, Korea*

PP-AD-04  Deep Learning Enhances the Reliability of Dynamic Contrast-Enhanced MRI in Diffuse Gliomas: Bypassing Post-Processing and Providing Uncertainty Maps  
Haneol Lee², Kyu Sung Choi¹, Jaedjun Yoo², Seung Hong Choi¹, Youngwook Lyoo¹  
¹*Department of Radiology, Seoul National University Hospital, Seoul, Korea*  
²*Graduate School of AI, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea*

PP-AD-05  Automatic Optimization of Multi-Loss Weights for MR Image Synthesis Using Coefficient of Variation Analysis  
Woo Jin Chung¹, Dae Hyeon Choe¹, Yoonho Nam¹, Ho-Joon Lee², Yeonah Kang³  
¹*Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea*  
²*Department of Radiology, Inje University College of Medicine, Haeundae Paik Hospital, Busan, Korea*
POSTERS

PP-AD-06 Reproduction of Direct Imaging of Neuronal Activity (DIANA) in Mice at 11.7T
Phan Tan Toi\textsuperscript{1}, Sophie Malaquin\textsuperscript{2}, Jae-Youn Keum\textsuperscript{3}, Cameron Hery\textsuperscript{2}, Eloise Mougel\textsuperscript{2}, Celine Baligand\textsuperscript{2}, Julien Valette\textsuperscript{2}, Jang-Yeon Park\textsuperscript{3,4}

\textsuperscript{1} Institute for Intelligent Precision Healthcare, Sungkyunkwan University, Suwon, Korea
\textsuperscript{2} Laboratoire des Maladies Neurodégénératives, Université Paris-Saclay, Commissariat à l’Energie Atomique et aux Energies Alternatives (CEA), Centre National de la Recherche Scientifique (CNRS), Molecular Imaging Research Center (MIRCen), Fontenay-aux-Roses, France
\textsuperscript{3} Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea
\textsuperscript{4} Department of Intelligent Precision Healthcare Convergence, Sungkyunkwan University, Suwon, Korea

PP-AD-07 No Replication of Direct Neuronal Activity-Related (DIANA) fMRI in Anesthetized Mice
Sanghan Choi\textsuperscript{1}, Geun Ho Im\textsuperscript{1}, Sangcheon Choi\textsuperscript{2}, Xin Yu\textsuperscript{2}, Peter a Bandettini\textsuperscript{3}, Ravi S Menon\textsuperscript{4}, Seong-Gi Kim\textsuperscript{1,5}

\textsuperscript{1} Center for Neuroscience Imaging Research, Institute for Basic Science, Suwon, Korea
\textsuperscript{2} Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, Massachusetts, United States
\textsuperscript{3} Section on Functional Imaging Methods and Functional MRI Facility, NIH, Bethesda, MD, United States
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\textsuperscript{5} Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea

PP-AD-08 Three-Dimensional fMRI with Reduced FOV
Xiaohong Joe Zhou\textsuperscript{1,2,3}, Qingfei Luo\textsuperscript{1}, Guangyu Dan\textsuperscript{1,3}, Kaibao Sun\textsuperscript{1}

\textsuperscript{1} Center for MR Research, University of Illinois College of Medicine, Chicago, Illinois, United States
\textsuperscript{2} Department of Radiology, University of Illinois College of Medicine, Chicago, Illinois, United States
\textsuperscript{3} Department of Biomedical Engineering, University of Illinois Chicago, Chicago, Illinois, United States
POSTERS

PP-AD-09  A χ-separation Atlas for Mapping Normative Iron and Myelin Distributions in the Human Brain

Kyeongseon Min⁷, Kyung Won Chang⁵, Soohwa Song³, Dong Hoon Shin³, Beomseok Sohn⁴, Phil Hyu Lee⁵, Woo Jung Kim⁶,⁷, Chae Jung Park⁸, Na-Young Shin⁹, Minjun Kim¹, Hyeo-Geol Shin¹⁰,¹¹, Jongho Lee¹

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² Department of Neurosurgery, Severance Hospital, Seoul, Korea
³ Heuron Co., Ltd, Korea
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⁵ Department of Neurology, Severance Hospital, Seoul, Korea
⁶ Institute of Behavioral Sciences in Medicine, Yonsei University College of Medicine, Seoul, Korea
⁷ Department of Psychiatry, Yongin Severance Hospital, Yongin, Korea
⁸ Department of Radiology, Yongin Severance Hospital, Yongin, Korea
⁹ Department of Radiology, The Catholic University of Korea, Seoul, Korea
¹⁰ Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, United States
¹¹ F.M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, United States

PP-AD-10  Simultaneous Acquisition of Temperature and Water Content Electrical Property Maps

Jinwoo Hwang¹,², Sangwoo Kim⁴, In Young Kim¹, Sukhoon Oh³

¹ Biomedical Engineering, Hanyang University, Seoul, Korea
² MR Clinical Science, Philips Korea, Seoul, Korea
³ RF Research and Engineering, Korea Basic Science Institute, Cheongju, Korea
⁴ Radiological Science, Daewon University College, Jecheon, Chungcheongbuk-do, Korea

PP-AD-11  Data-Driven Based Electrical Conductivity Reconstructions with Triplane Gradient Ensemble of B1 Phase

Chan-Hee Park¹, Kyu-Jin Jung², Chuanjiang Cui², Stefano Mandija³,⁴, Thierry Meerbothe³,⁴, Mina Park⁵, Yoonho Nam³, Dong-Hyun Kim²

¹ Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin-si, Korea
² Department of Electrical and Electronic Engineering, Yonsei University, Seoul, Korea
³ Department of Radiotherapy, UMC Utrecht, Utrecht, Netherlands
⁴ Computational Imaging Group for MR Therapy and Diagnostics, UMC Utrecht, Utrecht, Netherlands
⁵ Department of Radiology, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea
POSTERS

PP-AD-12  Deep Learning for Automated Quantification of Cerebral Blood Flow from Phase-Contrast MRI
Jinwon Kim¹, Hyebin Lee², Sungsuk Oh³, Jinhee Jang², Hyunyeol Lee¹
¹ School of Electronic and Electrical Engineering, Kyungpook National University, Daegu, Korea
² Department of Radiology, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea
³ Medical Device Development Center, Daegu-Gyeongbuk Medical Innovation Foundation (K-MEDI hub), Daegu, Korea

PP-AD-13  Robust Resolution Improvement of 3D UTE-MR Angiogram Data Using Super-Resolution Convolutional Neural Networks
Abel Worku Tessema¹, Seokha Jin¹, Yelim Gong², HyungJoon Cho¹
¹ Department of Biomedical Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea
² Department of Medical Information, Chung-Ang University Gwangmyeong Hospital, Gyeonggi-do, Korea

PP-AD-14  Improved PVS Segmentation Using T1-Weighted Image: Comparison with T2-Weighted Image-Based Segmentation
Junghwa Kang, Yoonho Nam
Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea

PP-AD-15  Physics Informed Vessel Segmentation Algorithm for Chi-Separation and Its Application for the Accurate Image Analysis
Taechang Kim, Sooyeon Ji, Jonghyo Youn, Minjun Kim, Jongho Lee
Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea

PP-AD-16  Continual Breast Segmentation Approach for Adaptation to MRI Manufacturer Shift
Dayeon Bak¹, Ji Hyun Park¹, Wooseung Kim¹, Ga Eun Park², Sung Hun Kim², Yoonho Nam¹
¹ Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea
² Department of Radiology, Seoul St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea

P-AD-01  BlindHarmony: Blind Harmonization for MR Images via Flow Model
Hwihun Jeong, Jongho Lee
Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea
POSTERS

P-AD-02  **Artifacts in QSM and χ-separation**
Hayeon Lee, Jongho Lee  
*Electrical and Computer Engineering, Seoul National University, Seoul, Korea*

P-AD-03  **Adaptive Sampling-Reconstruction in Accelerated MRI with High-Frequency Bayesian Uncertainty**
Seongmin Hong, Jaehyeok Bae, Jongho Lee, Se Young Chun  
*Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea*

P-AD-04  **Construction of an Automatic Image Registration System for Massive MRI-CT Paired Data**
Ji Woo Jeong, Dagnachew Tessama Ambaye, Ji Won Ryu, Ji Min Lee, HyungJoon Cho  
1 *Department of Biomedical Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea*  
2 *Graduate School of Artificial Intelligence, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea*  
3 *Department of Nuclear Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea*

P-AD-05  **Deep Learning-Based Resolution Dependent MRI-CT Conversion for Orthotopic Breast Cancer Model**
Dagnachew Tessema Ambaye, Ji Woo Jeong, Abel Work Tessema, Jimin Lee, Hyung-Joon Cho  
1 *Graduate School of Artificial Intelligence, UNIST, Ulsan, Korea*  
2 *Department of Biomedical Engineering, UNIST, Ulsan, Korea*  
3 *Department of Nuclear Engineering, UNIST, Ulsan, Korea*  
4 *Department of Electrical & Computer Engineering, HU-IOT, Hawassa, Ethiopia*

P-AD-06  **Potential of Advanced MR Imaging Techniques in the INTERMED Hospital**
Tsogzolmaa Ganbaatar, Nyambayar Natsagsuren  
1 *Radiology, Intermed, Ulaanbaatar, Mongolia*  
2 *Radiology, Medportal, Ulaanbaatar, Mongolia*
POSTERS

P-AD-07  **In-vivo Delineation of Diamagnetic Myelin and Paramagnetic Iron through Deep Learning-Based \( \chi \)-separation: Application to Multiple Sclerosis Patient Data**

Sooyeon Ji\(^1\), Hyeong-Geol Shin\(^2\), Jinhee Jang\(^4\), Jongho Lee\(^1\)

\(^1\) Department of Electronical and Computer Engineering, Seoul National University, Seoul, Korea  
\(^2\) Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, United States  
\(^3\) F.M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Research Institute, Baltimore, MD, United States  
\(^4\) Department of Radiology, Seoul St Mary's Hospital, Seoul, Korea  
\(^5\) College of Medicine, The Catholic University of Korea, Seoul, Korea

P-AD-08  **Data-Driven Method for Reducing B0 Inhomogeneity Artifact in Gradient Echo EPI**

Soohyung Lee, Chuanjiang Cui, Kyujin Jung, Dong-Hyun Kim

Department of Electrical and Electronic Engineering, Yonsei University, Seoul, Korea

P-AD-09  **Improving Deep Learning-Based Synthesized Delayed Post Contrast MR Images Using Structural Images**

Seung Joo Lee\(^1\), Wooseung Kim\(^1\), Yoonho Nam\(^1\), Ho-Joon Lee\(^2\), Yeonah Kang\(^2\)

\(^1\) Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea  
\(^2\) Department of Radiology, Inje University College of Medicine, Haeundae Paik Hospital, Busan, Korea

P-AD-10  **Relationship between Myelin Volume Fraction and R2 Values in Aging Rat Corpus Callosum**

Hwapyeong Cho, HyungJoon Cho

Department of Biomedical Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea

P-AD-11  **Swin Transformer-Based Image Quality Enhancement for Perivascular Space Assessment in Neonatal Brain MR Image**

Eun A Kwon\(^1\), Junghwa Kang\(^1\), Hyun Gi Kim\(^2\), Yoonho Nam\(^1\)

\(^1\) Division of Biomedical Engineering, Hankuk University of Foreign Studies, Yongin, Korea  
\(^2\) Department of Radiology, Eunpyeong St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Eunpyeong, Seoul, Korea
POSTERS

BREAST

P-BR-01  MR-Guided Breast Biopsy Using Diffusion-Weighted Imaging (DWI) in Patients with Paraffin Injection: A Case Report
Jeeyea Im, Hyewon Kim
Radiology, Wonkwang University Hospital, Iksan, Korea

P-BR-02  Breast Background Parenchymal Enhancement Expressed in Units of Contrast Agent Concentration: Evidence of Improved Effect Size over Conventional MR Signal Approach
Henry Rusinek¹, Artem Mikheev¹, Jean Logan¹, Louisa Bokacheva¹, Gene Kim²
¹ Department of Radiology, New York University Grossman School of Medicine, New York, United States
² Department of Radiology, Weill Cornell Medicine, New York, United States

P-BR-03  How to Develop Robust MRI Radiomics in Oncology Imaging: Radiomics Quality Score and Similarity Assessment in Tumor Segmentation
Juhyun Jeong¹, Bo Kyoung Seo¹, Sungwon Ham², Jeong Taek Lee¹, Min Sun Bae¹
¹ Radiology, Korea University Ansan Hospital, Korea University College of Medicine, Ansan-si, Gyeonggi-do, Korea
² Healthcare Readiness Institute for Unified Korea, Korea University Ansan Hospital, Korea University College of Medicine, Ansan-si, Gyeonggi-do, Korea

CARDIOVASCULAR

P-CV-01  Right Ventricular Function and Myocardial Deformation in Patients with Pulmonary Regurgitation with Versus without Tetralogy of Fallot
Akio Inage
Pediatrics, Japanese Red Cross Medical Center, Tokyo, Japan

P-CV-02  Clinical Utility for Texture Analysis of Cardiac Magnetic Resonance Images for the Diagnosis of Cardiac Amyloidosis
Jae Kyu Choi¹, Jonghyun Yoon¹, In-Chang Hwang², Hong-Mi Choi², Yeonyee E Yoon², Pan Ki Kim¹, Hyoung Wook Choi¹, Byoung Wook Choi¹, Ki Yeol Lee³, Eunju Chun⁴
POSTERS

1 Research and Development, Phantomics Inc., Seoul, Korea
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4 Department of Radiology, Korea University Ansan Hospital, Ansan, Korea
5 Department of Radiology, Seoul National University Bundang Hospital, Seongnam, Korea

P-CV-03 AI-Guided Categorization of Cardiovascular Disease Using Late Gadolinium Enhancement Imaging
Youngjung Yang1, Suyon Chnag2, Pan Ki Kim1, Byoung Wook Choi1,3, Young Joo Suh3
1 Department of RnD Team, Phantomics Inc., Seoul, Korea
2 Department of Radiology, St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea
3 Department of Radiology, Research Institute of Radiological Science, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

P-CV-04 Advanced T1 Mapping Standardization: A Phantom-Based Approach for Multi-Center Study
Jinho Park1, Hyoung Wook Choi1, In-Chang Hwang2, Hong-Mi Choi2, Yeonyee E Yoon2, Panki Kim1, Byoung Wook Choi1,3, Eun Ju Chun4
1 RnD, Phantomics Inc., Seoul, Korea
2 Division of Cardiology, Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Korea
3 Department of Radiology, Research Institute of Radiological Science, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea
4 Department of Radiology, Seoul National University Bundang Hospital, Seongnam, Korea

P-CV-05 Enhancing Subendocardial Infarction Feasibility with Synthetic Double Inversion Recovery LGE
Jinho Park1, Jong Eun Lee2, Jiyoung Park1, Panki Kim1, Byoung Wook Choi1,3, Sung Mok Kim4
1 RnD, Phantomics Inc., Seoul, Korea
2 Department of Radiology, Chonnam National University Hospital, Gwangju, Korea
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4 Department of Radiology, Heart Vascular Stroke Institute, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea
POSTERS

P-CV-06  Radiomics of Cardiac MRI for Classification of Myocardial Disease  
Jong-Hyun Yoon¹, Jae Kyu Choi¹, In-Chang Hwang², Hong-Mi Choi², Yeonyee E Yoon², Hyoung Wook Choi¹, Pan-Ki Kim³, Byoung Wook Choi¹,³, Eun Ju Chun⁴  
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³ Department of Radiology, Yonsei University Severance Hospital, Seoul, Korea  
⁴ Department of Radiology, Seoul National University Bundang Hospital, Seongnam, Korea

P-CV-07  Feasibility of Black Blood Synthetic Late Gadolinium Enhancement for Detection of Subendocardial Infarction in Myocardial Infarction Patients Using T1 Imaging  
Jiyong Park¹, Jinho Park¹, Su Jin Hong², Panki Kim¹, Byoung Wook Choi¹,³, Sung Mok Kim⁴  
¹ Department of Research and Development, Phantomics Inc., Seoul, Korea  
² Department of Radiology, Hanyang University Guri Hospital, Hanyang University College of Medicine, Seoul, Korea  
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⁴ Department of Radiology, Heart Vascular Stroke Institute, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

P-CV-08  Estimation of Optimal Inversion Time for Synthetic Late Gadolinium Enhancement Images Using Post T1 Mapping Value of Normal Myocardium  
Suji Lee¹, Jaeyoon Shim², Jinho Park², Pan Ki Kim², Byoung Wook Choi¹,³, Young Jin Kim¹  
¹ Department of Radiology, Severance Hospital, Research Institute of Radiological Science, Yonsei University College of Medicine, Seoul, Korea  
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GYNECOLOGY-UROLOGY

P-GU-01  Imaging Features of the Hypointense Solid Lesions in the Kidney on T2-Weighted MR Images  
Sung Bin Park  
Radiology, Chung-Ang University Hospital, Seoul, Korea

P-GU-02  An Alternative Vesical-Invasive Risk Score for Bladder Cancer Using MRI  
Yu Gong, Chen-Jiang Wu, Yu-Dong Zhang  
Department of Radiology, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China
POSTERS

P-GU-03  An Interactive Transformer Learning Network Outperforms VI-RADS for the Diagnosis of Muscle Invasion in Bladder Cancer
Yu Gong, Chen-Jiang Wu, Yu-Dong Zhang
Department of Radiology, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China

P-GU-04  Imaging Features of the Hypointense Solid Lesions in the Female Pelvis on T2-Weighted MR Images
Sung Bin Park
Radiology, Chung-Ang University Hospital, Seoul, Korea

P-GU-05  Massive Ovarian Edema on MRI with Clinicopathologic Correlation
Soslmi Lee, Sung Bin Park, Eun Sun Lee, Hyun Jung Park, Min Ju Kim, Byung Ihn Choi
Department of Radiology, Chung-Ang University Hospital, Seoul, Korea

P-GU-06  Apparent Diffusion Coefficient Histogram Analysis in Diagnosing Placenta Accreta Spectrum Disorders and Predicting Adverse Maternal Outcomes
Haesung Yoon¹, Yun Ji Jung², Ja-Young Kwon², Hyun Ji Lim¹, Jisoo Kim¹, Mi-Jung Lee¹
¹ Department of Radiology, Yonsei University College of Medicine, Seoul, Korea
² Department of Obstetrics and Gynecology Yonsei University College of Medicine, Seoul, Korea

P-GU-07  Is MR Urography Equivalent to CT Urography in Evaluation of Acute Urinary Conditions
Rajul Rastogi, Nitya Verma, Vijai Pratap
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India

P-GU-08  Magnetic Resonance Urethrography - One Stop Shop for Male Anterior Urethral Strictures
Rajul Rastogi
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India

P-GU-09  Magnetic Resonance Imaging Evaluation of Pelvic Floor Dysfunction in Females
Rajul Rastogi, Tanya Jain, Vijai Pratap
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India
MOLECULAR MRI

P-MO-01  HP [1-13C]Pyruvate MRS Differently Response to the ATP Citrate Lyase Inhibitor in between Diabetic Liver and Kidney
Young-Suk Choi, Ho-Taek Song
Department of Radiology and Research Institute of Radiological Science, Yonsei University College of Medicine, Seoul, Korea

P-MO-02  Differentiating Esophageal Small Cell Carcinoma from Esophageal Squamous Cell Carcinoma Based on DWI, DKI, and IVIM: A Prospective Study
Le Tian Yuan
Department of Radiology, Shandong Provincial Hospital, Jinan, China

P-MO-03  Choline as a Specific Manifestation of Delayed Encephalopathy after Acute Carbon Monoxide Poisoning
Huige Zhai¹, Gen Yan², Dongyuan Xu¹
¹ Center of Morphological Experiment, Medical College of Yanbian University, Yanji, Jilin Province, China
² Department of Radiology, The Second Affiliated Hospital of Xiamen Medical College, Xiamen, China

P-MO-04  Prognostic Monitoring of Therapeutic Efficacy for Tumor Xenografts via High-Resolution MR Imaging
Minhee Ku, Woong Sub Koom, Jin Sung Kim, Jaemoon Yang
Department of Radiology, Yonsei University, Seoul, Korea

MR ENGINEERING

PP-ME-01  Comparison of Image Generation Networks in Virtual Fat Suppressed T2-Weighted Cervical MR Images
Tomoki Aizawa, Norio Hayashi, Teresa Ichiki, Ami Masuda, Haruyuki Watanabe, Toshihiro Ogura
Department of Radiological Technology, Gunma Prefectural College of Health Sciences, Kamio-kimachi, Maebashi Shi, Japan
POSTERS

PP-ME-02  Denoising 4D Flow MRI Data Using Singular Value Decomposition with Spliting and Ovelaping
Seungmin Kang¹, Simon Song¹, Don-Gwan An¹, Hojin Ha², Dong Hyun Yang³, Ilhoon Jang¹
¹ Department of Mechanical Engineering, Hanyang University, Seoul, Korea
² Department of Mechanical and Biomedical Engineering, Kangwon National University, Gangwon-do, Korea
³ Department of Radiology, Asan Medical Center, Seoul, Korea

PP-ME-03  Continuous Spatio-Temporal Representation with Implicit Neural Representation and Neural Ordinary Differential Equation in Dynamic Susceptibility Contrast MRI
Junhyeok Lee, Kyu Sung Choi, Inpyeong Hwang, Seung Hong Choi, Jin Wook Chung, Jung Hyun Park
Department of Radiology, Seoul National University Hospital, Seoul, Korea

PP-ME-04  Strategy for Improving Deep Learning Performance in Diagnosis of Autism Spectrum Disorder from Volumetric MRI
Wonjun Son¹, So Mi Lee², Hyunyeol Lee¹
¹ School of Electronic and Electrical Engineering, Kyungpook National University, Daegu, Korea
² Department of Radiology, Kyungpook National University Hospital, Daegu, Korea

PP-ME-05  Reducing RF-Induced Heating in DBS Patient at 7T MRI Using Geometrically Adjustable RF Head Coil
Youngdae Cho¹, Hyoungsuk Yoo¹,²
¹ Electronic Engineering, Hanyang University, Seoul, Korea
² Biomedical Engineering, Hanyang University, Seoul, Korea

PP-ME-06  Compact Antenna for High-Resolution Intravascular Catheter Tracking and Imaging at 3T MRI
Shahzeb Hayat¹, Hyoungsuk Yoo¹,²
¹ Electronic Engineering, Hanyang University, Seoul, Korea
² Biomedical Engineering, Hanyang University, Seoul, Korea

P-ME-01  Simultaneous Acquisition of Temperature Mapping for Fatty and Nonfatty Biological Tissues Based on Look-Locker Technique
Sangwoo Kim¹, Jinwoo Hwang²,³, Sukhoon Oh⁴
¹ Department of Radiological Science, Daewon University College, Jecheon, Korea
² Biomedical Engineering, Hanyang University, Seoul, Korea
³ MR Clinical Science, Philips Korea, Seoul, Korea
⁴ Center for Research Equipment, Korea Basic Science Institute, Cheongju, Korea
POSTERS

P-ME-02  Assessment of Image Quality in Virtual Fat-Suppressed T2-Weighted Images Generated by Pix2pix Architecture with Varying Training Data Volume  
Teresa Ichiki, Norio Hayashi, Tomoki Aizawa, Ami Masuda, Shunsuke Fujii, Toshihiro Ogura, Haruyuki Watanabe  
Radiological Technology, Gunma Prefectural College of Health Sciences, Maebashi, Japan

P-ME-03  Reproducibility Issue in Network Training of Deep Learning MR Reconstruction  
Chungseok Oh, Hongjun An, Jongho Lee  
Electrical and Computer Engineering, Seoul National University, Seoul, Korea

P-ME-04  Simultaneous Multislice Pulse Optimization Using DeepRF  
Jiye Kim, Jongho Lee  
Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea

P-ME-05  Phantom Dedicated for Quantitative Susceptibility Mapping of MRI  
Moeno Koma, Tetsuhiko Takahashi, Ryo Atarashi, Jun Amano  
Radiological Technology, Gunma Prefectural College of Health Sciences, Maebashi, Japan

P-ME-06  A Comparative Study of T2-Weighted and Susceptibility-Weighted Imaging for Brain Damages in a Photothrombotic Ischemic Stroke Animal Model  
Sung Suk Oh¹, Yoon Beom Lee², Sanghyun Ahn², Jong-Ryul Choi³  
¹ Medical Device Development Center, Daegu-Gyeongbuk Medical Innovation Foundation (K-MEDI hub), Daegu, Korea  
² Preclinical Research Center, Daegu-Gyeongbuk Medical Innovation Foundation (K-MEDI hub), Daegu, Korea

P-ME-07  Effect of Gaussian Filter on Automatic Analysis of White Matter Hyperintensity (WMH) in FLAIR Images  
Jun Amano, Tetsuhiko Takahashi, Ryo Atarashi, Moeno Koma  
Radiological Technology, Gunma Prefectural College of Health Sciences, Maebashi, Japan

P-ME-08  Quantum Adaptive Basis Denoising for 31P Magnetic Resonance Spectroscopy  
Yeong Jae Jeon¹, Shin Eui Park², Hyeon Man Baek¹,³  
¹ Department of Health Sciences and Technology, Gachon Advanced Institute for Health Sciences and Technology, Gachon University, Incheon, Korea  
² Department of Biomedical Science, Lee Gil Ya Cancer and Diabetes Institute, Gachon University, Incheon, Korea  
³ Department of Molecular Medicine, Lee Gil Ya Cancer and Diabetes Institute, Gachon University, Incheon, Korea
MUSCULOSKELETAL

P-MS-02 Longitudinal Stress Fracture of the Ulna in a Military Cook with Wok Pot Use
Jiwon Bae, Seul Ki Lee, Jee-Young Kim, Yuri Kim
Department of Radiology, St. Vincent's Hospital, The Catholic University of Korea, Suwon, Korea

P-MS-03 Diffuse-Type Tenosynovial Giant Cell Tumor: Imaging Characteristics on Pre- and Postoperative MRI
Woo Suk Choi, Seul Ki Lee, Jee-Young Kim, Yuri Kim
Radiology, St. Vincent's Hospital, Suwon, Korea

P-MS-04 Synovial Sarcoma in the Extremity: Diversity of Imaging Features for Diagnosis and Prognosis
Eun Byul Cho\textsuperscript{1}, Seul Ki Lee\textsuperscript{2}, Jee-Young Kim\textsuperscript{2}, Yuri Kim\textsuperscript{2}
\textsuperscript{1} Department of Radiology, Uijeongbu St. Mary's Hospital, Uijeongbu, Korea
\textsuperscript{2} Department of Radiology, St. Vincent's Hospital, Suwon, Korea

P-MS-05 Ulnar Neuropathy at the Elbow: Associations of Pre-Operative DTI Parameters with Clinical Outcomes after Cubital Tunnel Decompression
Kyung-Ho Kim\textsuperscript{2}, Min Hee Lee\textsuperscript{1}, Sun-Young Park\textsuperscript{1}, Hwa Jung Kim\textsuperscript{3}, Choong Guen Chee\textsuperscript{1}, Min a Yoon\textsuperscript{1}, Hye Won Chung\textsuperscript{1}, Sang Hoon Lee\textsuperscript{3}
\textsuperscript{1} Department of Radiology and Research Institute of Radiology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea
\textsuperscript{2} Radiology, BNS Neurosurgery, Seoul, Korea
\textsuperscript{3} Department of Clinical Epidemiology and Biostatics, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea

P-MS-06 Retrospective Comparison Study of Acromioclavicular Osteoarthritis Changes between Conventional Radiograph and MRI among Patients with Painful Shoulders
Cindy Chin Yeen Ling\textsuperscript{1,2}, Shahizon Azura Muhamed Mukari\textsuperscript{1}, Juliana Fairuz Binti Maktar\textsuperscript{1}, Ahmad Tarmizi Musa\textsuperscript{1}
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\textsuperscript{2} Department of Radiology, University Malaysia Sabah (UMS), Kota Kinabalu, Sabah, Malaysia

P-MS-07 Image Quality and Data Consistency of Deep Learning Accelerated Sequences for Cervical Spine MRI: Comparison with Conventional T2-Weighted Dixon
Geojeong Seo, Sun Joo Lee
Department of Radiology, Inje University Busan Paik Hospital, Busan, Korea
POSTERS

P-MS-08  Deep Learning System for Automated Detection of Posterior Ligamentous Complex Injury in Patients with Thoracolumbar Fracture on MRI  
Sang Won Jo1, Eun Kyung Khil1, Yu Sung Yoon2, Jae Hyeok Lee3  
1 Radiology, Hallym University Dongtan Sacred Heart Hospital, Hwaseong, Gyeonggi, Korea  
2 Radiology, Soonchunhyang University Bucheon Hospital, Bucheon, Gyeonggi, Korea  
3 Research Team, DeepNoid, Seoul, Korea

P-MS-09  MR Findings of Massive and Active Leakage of CSF with Jet Flow Artifacts after Spine Surgery  
Soon Tae Kwon1, Myeong Jin Choi1, Jae-Sung Ahn2, Ho-Jin Lee2  
1 Radiology, Chungnam National University Hospital, Daejeon, Korea  
2 Orthopedic Surgery, Chungnam National University Hospital, Daejeon, Korea

P-MS-10  MR Neurography Findings in a Patient with Radial Nerve Torsion: A Case Study  
Cheonghwan Shin, Seon-Kwan Juhng  
Radiology, Wonkwang University Hospital, Iksan, Korea

P-MS-11  Fast Field Echo Resembling a CT Using Restricted Echo-Spacing (FRACTURE) Magnetic Resonance Imaging of Craniocervical Region Using a 3.0-T Scanner in Dogs  
Dongjae Lee1, Eunji Kim1, Hyunjae Woo1, Chang-Yeop Jeon2, Junghie Yoon1, Jihye Choi1  
1 Department of Veterinary Medical Imaging, Seoul National University, Seoul, Korea  
2 National Primate Research Center, Korea Research Institute of Bioscience and Biotechnology, Cheongju, Korea

NEURO

P-NR-01  Diminished Medial Orbitofrontal Cortex Size and Functional Connectivity in Postmenopausal Women  
Gwang-Won Kim1, Yun-Hyeon Kim2, Kwangsung Park1,3, Gwang-Woo Jeong2  
1 Advanced Institute of Aging Science, Chonnam National University, Gwangju, Korea  
2 Department of Radiology, Chonnam National University Medical School, Gwangju, Korea  
3 Department of Urology, Chonnam National University Hospital, Gwangju, Korea

P-NR-04  Resting-State Cerebrovascular Reactivity in Patients with Traumatic Brain Injury  
Sungmin Kim1, Savannah C Steer2, Jonghun Lee3, Wonpil Jang1, Junghoon Kim2, Joon Yul Choi1  
1,2

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POSTERS

P-NR-05  Reliability of Resting-State Cerebrovascular Reactivity without Gas Challenge
Dohyeon Kim1, Savannah C Steer2, Jonghun Lee1, Junghoon Kim2, Joon Yul Choi1
1 Department of Biomedical Engineering, Yonsei University, Wonju, Korea
2 Department of Molecular, Cellular, and Biomedical Sciences, CUNY School of Medicine, The City University of New York, United States

P-NR-06  SandwichNM Based Volumetric Analysis of Substantia Nigra: A Pilot Study
Jaewoo Choi1, Sooyeon Ji1, Soohwa Song2, Sungbum Park2, Yoomi Kim2, Beomseok Sohn3, Yoonho Nam4, Junghwa Kang4, Jongho Lee1
1 Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea
2 Heuron Co., Ltd., Incheon, Korea
3 Department of Radiology, Samsung Medical Center, Seoul, Korea
4 Division of Biomedical Engineering, Hankuk University of Foreign Studies, Gyeonggi-do, Korea

P-NR-07  Magnetic Field Strength Variability: Assessing Segmentation Methods for Brain Volume Analysis
Hyunji Lee1, Regina Ey Kim1, Jimin Kang1, Hye Weon Kim1, Min-Ho Lee1, Hyeon Kook Lim2, Jun-Young Lee3, Eosu Kim4
1 Research Institute, Neurophet, Seoul, Korea
2 Department of Psychiatry, Yeouido St. Mary’s Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea
3 Department of Psychiatry, SMG-SNU Boramae Medical Center, Seoul, Korea
4 Department of Psychiatry, Institute of Behavioral Science in Medicine, Brain Korea 21 FOUR Project for Medical Science, Yonsei University College of Medicine, Seoul, Korea

P-NR-08  Dynamic Functional Connectivity Using Resting-State fMRI in Patients with Moderate-to-Severe Obstructive Sleep Apnea
Bokyung Kim1, Chang-Woo Ryu1, Geon-Ho Jahng1, Soonchan Park1, Jung-Ick Byun2, Won-Chul Shin2
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2 Department of Neurology, Kyung-Hee University Hospital at Gangdong, Kyung-Hee University College of Medicine, Seoul, Korea
**POSTERS**

**P-NR-09**  
**Conductivity-Based fMRI During Visual Stimulation**  
Bokyung Kim¹, Chang-Woo Ryu¹, Geon-Ho Jahng¹, Soonchan Park¹, Jeongin Jeong², Mun-Bae Lee³, Oh-In Kwon³  
¹ Department of Radiology, Kyung-Hee University Hospital at Gangdong, Kyung-Hee University College of Medicine, Seoul, Korea  
² Department of Biomedical Engineering, Undergraduate School, College of Electronics and Information, Kyung-Hee University, Giheung-gu, Yongin-si, Gyeonggi-do, Korea  
³ Department of Mathematics, College of Basic Science, Konkuk University, Seoul, Korea

**P-NR-13**  
**Diagnostic Utility of Elastography in Detecting Malignant Thyroid Nodule Using Histopathology as a Reference Standard: A Systematic Review and Meta-Analysis**  
Rainier Pausanos  
Radiological Sciences, Philippine Heart Center, Manila, Philippines

**P-NR-14**  
**Decomposition of High-Frequency Conductivity into Extraneurite and Intraneurite Conductivites in the Brain of Alzheimer’s Disease Patients**  
Seowon Hong¹, Yunjeong Choi², Mun Bae Lee³, Hak Young Rhee⁴,⁵, Sonnchan Park¹,⁵, Ah Rang Cho⁵,⁶, Oh In Kwon³, Geon-Ho Jahng¹,⁵, Chang-Woo Ryu¹,⁵  
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² Department of Biomedical Engineering, Kyung Hee University, Seoul, Korea  
³ Department of Mathematics, Konkuk University, Seoul, Korea  
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⁵ Department of Medicine, Kyung Hee University College of Medicine, Seoul, Korea  
⁶ Department of Psychiatry, Kyung Hee University Hospital at Gangdong, Seoul, Korea

**P-NR-15**  
**Alterations of Glutathione Level in Default Mode Network in Depressive Patients**  
Seungho Kim¹, Sang Won Lee³,³,³, Hyunsil Cha⁴, Hansol Lee¹, Sangyeol Lee⁵, Moon Jung Hwang⁶, Changho Choi⁷, Seung Jae Lee³,³,³, Yongmin Chang⁹,¹⁰  
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⁴ Product Strategy Department, Coreline Soft, Seoul, Korea  
⁵ Research Strategy, Korean Brain Research Institute, Daegu, Korea  
⁶ MR Applications and Workflow, GE Healthcare, Seoul, Korea  
⁷ Department of Radiology and Radiological Sciences, Vanderbilt University Medical Center, Nashville, Tennessee, United States  
⁸ Department of Psychiatry, Kyungpook National University Hospital, Daegu, Korea  
⁹ Department of Molecular Medicine, School of Medicine, Kyungpook National University, Daegu, Korea  
¹⁰ Department of Radiology, Kyungpook National University Hospital, Daegu, Korea
POSTERS

P-NR-16  **MR Features of Corpus Callosum Lesions – DMTES Classification**
Hyun Kyeong Yuk, In Kyu Yu, Ha Youn Kim
Department of Radiology, Eulji University Hospital, Daejeon, Korea

P-NR-17  **Association between Conductivity and Brain Tissue Volume and Diffusivity in the Brain**
Taewon Park¹, Hak Young Rhee²,³, Soonchan Park¹,³, Geon-Ho Jahng¹,³, Chang-Woo Ryu¹,³
¹ Department of Radiology, Kyung Hee University Hospital at Gangdong, Seoul, Korea
² Department of Neurology, Kyung Hee University Hospital at Gangdong, Seoul, Korea
³ Department of Medicine, Kyung Hee University College of Medicine, Seoul, Korea

P-NR-18  **Activation of Cognitive-Associated Brain Regions Depending on Chewing Hardness: An fMRI Study**
Hansol Lee¹, Ji-Hye Kim²,³, Dabin Ahn⁴, Ju Eon Kim⁴, Minseong Kang⁴, Hyunj Nam⁴, Yerim Cho⁴, Hyunsil Cha⁴, Moon Jung Hwang⁴, Youn-Hee Choi²,³, Yongmin Chang¹,⁷,⁸
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³ Institute for Translational Research in Dentistry, Kyungpook National University, Daegu, Korea
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⁵ Product Strategy Department, Coreline Soft, Seoul, Korea
⁶ MR Application and Workflow, GE Healthcare Korea, Seoul, Korea
⁷ Department of Radiology, Kyungpook National University Hospital, Daegu, Korea
⁸ Department of Molecular School of Medicine, Kyungpook National University, Daegu, Korea

P-NR-19  **Effects of Chronic Pain on Cerebral Hemodynamics in Spinal Nerve Ligation Model Over Time**
Seokha Jin, Hyung Joon Cho
Biomedical Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea

P-NR-20  **Prominent Cerebral Veins on Susceptibility-Weighted Angiography in Acute Meningoencephalitis**
Gyeongyeon Yeo, Mina Park, Bio Joo, Sang Hyun Suh, Sung Jun Ahn
Department of Radiology, Gangnam Severance Hospital, Seoul, Korea

P-NR-21  **The Brain Functional and Structural Abnormalities with Clinical Characteristics of Male Patients with Alcohol Dependence**
Shin-Eui Park¹, Yeoung-Jae Jeon¹,², Hyeon-Man Baek¹,²
¹ Lee Gil Ya Cancer & Diabetes Institute, Gachon University, Incheon, Korea
² Department of Health Science and Technology, Gachon University, Incheon, Korea
POSTERS

P-NR-22 A Giant Tumefactive Perivascular Space: A Rare Cause of Obstructive Hydrocephalus
Hyunkoo Kang
Department of Radiology, VHS Medical Center, Seoul, Korea

P-NR-23 Thalamocortical Neurodynamics in Human Conscious Perception: An fMRI Study
Jeehye Seo¹, Jehyeop Lee², Yukyung Kim², Je-Choon Park², Jeongwook Kwon², BYoung-Kyong Min¹,²
¹ Institute of Brain and Cognitive Engineering, Korea University, Seoul, Korea
² Department of Brain and Cognitive Engineering, Korea University, Seoul, Korea

P-NR-24 Mild Cognitive Impairment is Associated with Grey Matter Structural Changes in
Patients with End-Stage Kidney Disease
Hui Jie Yuan¹, Jing Yang¹, Zhao Yao Luo¹, Shao Hui Ma¹, Peng Li², Hang Su³, Rong Hua He³, Jun Ya Mu¹, Ming Zhang¹
¹ Department of Medical Imaging, First Affiliated Hospital of Xi’an Jiaotong University, Xi’an Shaanxi, China
² Department of Medical Imaging, Hospital of Shaanxi Nuclear Geology, Xianyang Shaanxi, China
³ Department of Radiology, Baoji Center Hospital, Baoji Shaanxi, China

Wenrui Bao, Zhaoyao Luo, Tao Lu, Ming Zhang, Xuan Niu
Department of Medical Imaging, The First Affiliated Hospital of Xi’an Jiaotong University, Xi’an, China

P-NR-27 Degree Centrality Abnormality of Thalamus and Sensory Brain Area in Chronic Insomnia Patients
Hui Wang¹, Hai Ning Li², Wen Xuan Han², Hui Ping Liu¹, Zi Yi Liu², Ying Xiang Sun²
¹ School of Future Technology, Xi’an Jiaotong University, Xi’an, Shaanxi Province, China
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P-NR-28 Identifying Amyotrophic Lateral Sclerosis through Abnormal Gray Matter Volume Pattern Using Support Vector Machine Algorithm
Shan Wu, Hai Ning Li, Qiu Li Zhang, Qian Qian Duan, Xin Yi Yu, Ming Zhang
Department of Medical Imaging, The First Affiliated Hospital of Xi’an Jiaotong University, Xi’an, Shannxi, China
POSTERS

P-NR-29 Magnetic Resonance Dynamic Susceptibility Contrast Perfusion-Weighted Imaging and Computed Tomography Perfusion Measurement: A Comparison Study between the Normal Canine Brain and Brain Tumor
Sang Min Lee, Jihye Choi, Sumin Park, Sungwha Hong, Soyeon Kim, Junghee Yoon
Department of Veterinary Radiology, Seoul National University, Seoul, Korea

P-NR-31 Can Prognosis in Stroke Patients Be Predicted by MR Diffusion Tensor Tractography?
Rajul Rastogi, Lakshay Khajuria, Vijai Pratap
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India

P-NR-32 Artificial Intelligence Based Brain Volumetric Analysis in Epileptic Patients
Rajul Rastogi, Arjun Dhingra
Department of Radiodiagnosis, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India

PEDIATRIC

P-PD-01 Predicting Prognosis of Patients with Medulloblastoma Based on Intratumoral and Peritumoral Early ADC Radiomics Model
Xiaoyu Hu, Shujie Wang, Kang Yang, Ming Yang
Radiology, Children's Hospital of Nanjing Medical University, Nanjing, China

EXCHANGE AWARD-WINNING POSTERS [JSMRM]

P-JS-01 The Effect on Gastrointestinal Peristalsis for MR Cholangiopancreatography during Breath-Holding Methods
Yuhei Otsuka1,2, Shiko Sakamura1, Tomoya Nakamura1, Nao Kajihara1, Katsuki Murakami1, Takao Tashiro2
1 Department of Radiology, Tokai University Hachioji Hospital, Japan
2 Human Life and Health Sciences, Graduate School of Arts and Sciences, The Open University of Japan, Japan
POSTERS

P-JS-02 Study for the Function Reconstruct Images by Using Obtained Data and Iterative Parallel Reconstruction Method in Case Scan is Aborted
Chikako Moriwake, Yusuke Hoshino, Shinji Kurokawa, Masahiro Takizawa
FUJIFILM Healthcare Corporation, Japan

P-JS-03 The Clinical Usefulness of SPEN: Results of Observer Study Depending on the Experience
Rena Nakayama¹, M. Iima¹,², M. Kataoka¹, M. Honda³, M. Otkovs⁴, N. Nissan⁵, L. Frydman⁶, Y. Urushibata⁶, A. Okazawa¹, M. Toi¹, Y. Nakamoto¹
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² Institute for Advancement of Clinical and Translational Science (iACT), Kyoto University Hospital, Kyoto, Japan
³ Department of Diagnostic Radiology, Kansai Electric Power Hospital, Osaka, Japan
⁴ Department of Chemical and Biological Physics, Weizmann Institute of Science, Rehovot, Israel
⁵ Department of Radiology, Sheba-Medical-Center, Ramat-Gan, Israel
⁶ Siemens Healthcare K.K., Tokyo, Japan

P-JS-04 Development of Single-Port, Inductively Coupled ¹H/²³Na Dual-Tuned RF Coils for Small Animals for 9.4 T Vertical-Bore Superconducting MRI
Naoto Momiyama¹, Tomoyuki Haishi², Yasuhiko Terada¹
¹ Graduate School of Science and Technology, University of Tsukuba, Japan
² Department of Radiological Sciences, International University of Health and Welfare, Japan

P-JS-05 Subregional Analysis of Triple Network Model in Mild Cognitive Impairment: A Novel Framework for Unraveling Disturbed Brain Networks
Keita Watanabe¹, Kentaro Akazawa¹, Koji Sakai¹, Finn Lennartsson², Sera Kasai³, Satoru Ide⁴, Yoshihito Umemura⁵, Soichiro Tatsuo⁶, Tatsuya Mikami⁵, Yoshinori Tamada⁶, Masahiko Tomiyama⁶, Kei Yamada¹, Shingo Kakeda³
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² Diagnostic Radiology, Department of Clinical Sciences Lund, Lund University, Japan
³ Department of Radiology, Hirosaki University Graduate School of Medicine, Japan
⁴ Department of Radiology, University of Occupational and Environmental Health, Japan
⁵ Innovation Center for Health Promotion, Hirosaki University, Japan
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Exploratory Study of Quantitative MRI Parameters Providing the Novel Value in Discriminating Muscle-Invasive Bladder Cancer

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Acknowledgment: The Commercialization Promotion Agency for R&D Outcomes(COM/PA) funded by the Ministry of Science and ICT(MSIT)(2023-22040301-00, 2023-22040301-10).
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- 에어다이렉티가 Pump tube 내의 기포를 즉시 감지하며 보다 안전하게 감사
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References
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