



KOREAN SOCIETY OF  
ULTRASOUND IN MEDICINE



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ULTRASOUND IN MEDICINE

# KSUM *Open* 2014

The 45<sup>th</sup> Annual Congress of  
Korean Society of Ultrasound in Medicine

May 23(Fri) - 24(Sat), 2014 | Coex, Seoul, Korea

***Program Book***

<http://2014.ksum.or.kr>



# TOSHIBA

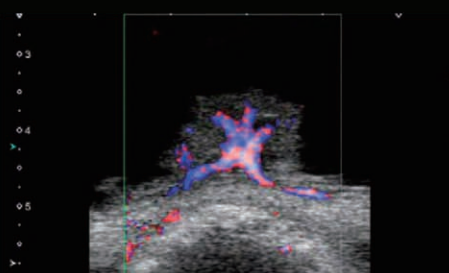
Leading Innovation >>>

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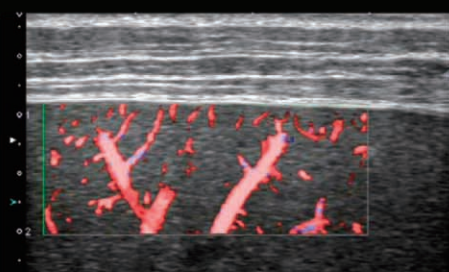
## 'Seeing the Unseen'

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Bladder Cancer cSMI



Liver cSMI



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## Welcome Message



**Dear colleagues and friends,**

On behalf of the Korean Society of Ultrasound in Medicine (KSUM), it is our great pleasure to invite all members of KSUM as well as international colleagues to participate in the KSUM Open 2014 to be held at the Coex in Seoul, Korea from May 23 (Fri) to 24 (Sat), 2014.

The KSUM has been laying down a solid foundation for continued growth as an international scientific congress by holding the KSUM Open, the annual Congress of KSUM, with a consistently increasing number of participants and upgraded scientific programs.

KSUM Open 2014 will propose a two-day program during which the organizing committee has planned an exciting Scientific Program including Interactive Case Review, Hands on Session, and Case of the Day (Quiz), which will bring together eminent speakers and delegates from all over the world. Furthermore, a Practice Workshop Program will be organized to give helpful information to students and young doctors who will lead the future of Ultrasound Medicine. To encourage scientific activities, the organizing committee is also preparing various awards and prizes.

We are confident that KSUM Open 2014 will offer much to see, learn, and take away as long-lasting memories, and invite you to participate in this wonderful experience.

We look forward to welcoming you at KSUM Open 2014 from May 23 to 24, 2014!

Sincerely,

A handwritten signature in black ink that reads "Hyo Keun Lim".

**Hyo-Keun LIM, M.D.**  
President, KSUM

A handwritten signature in black ink that reads "Joon Koo Han".

**Joon Koo HAN, M.D.**  
Chair, KSUM Open Organizing Committee

# Organizing Committee

Position	Name	Affiliation
President	Hyo-Keun Lim	Samsung Medical Center
Vice-president	Jae Young Byun	Seoul St. Mary's Hospital
Chair, Organizing Committee	Joon Koo Han	Seoul National University Hospital
Secretary General	Jae-Joon Chung	Gangnam Severance Hospital
Secretary	Dalmo Yang	Kyung Hee University Hospital at GangDong
Treasurer	Jeong Yeon Cho	Seoul National University Hospital
Chair, Scientific Program Committee	Boo-Kyung Han	Samsung Medical Center
Chair, Scientific Exhibition	Jung Hwan Baek	Asan Medical Center
Chair, Meet the Professor Session	Hye Won Chung	Asan Medical Center
Chair, Case of the Day	Dongil Choi	Samsung Medical Center
Chair, Interactive Case Review	Bo Kyoung Seo	Korea University Ansan Hospital
Chair, Hands on Session	Jae Young Lee	Seoul National University Hospital
Chair, Education Program	Seung Eun Jung	Seoul St. Mary's Hospital
Chair, Physics Program	Yangmo Yoo	Sogang University
Chair, Public Relation Committee	Yun Sun Choi	Eulji University Medical Center
Chair, Technical Exhibition Committee	Won Jae Lee	Samsung Medical Center
Chair, Publication Committee	Jeong- Sik Yu	Gangnam Severance Hospital
Chair, International Liaison Committee	Jae Young Lee	Seoul National University Hospital
Chair, Registration Committee	Yong Moon Shin	Asan Medical Center
Chair, Social Program Committee	Chang Soo Ahn	Yonsei Radiology Clinic
Advisory Committee	Byung Ihn Choi	Seoul National University Hospital
	Kyoung-Sik Cho	Asan Medical Center
	Young Ho Lee	Cheil General Hospital & Women's Healthcare Center
	Kiwhang Kim	Severance Hospital
	In-One Kim	Seoul National University Hospital
	Cheol Min Park	Korea University Guro Hospital
	Seung Hyup Kim	Seoul National University Hospital
	Hae Jeong Jeon	Konkuk University Medical Center
	Hak Hee Kim	Asan Medical Center
	Kyoo Byung Chung	Korea Association of Health Promotion
	Jong Tae Lee	CHA Bundang Medical Center
	Hyung sik Yoo	Konyang University Hospital
	Jae Hoon Lim	Myongji Hospital
	Young Tae Ko	Eulji Hospital
	Heoung Keun Kang	Chonnam National University Hospital
	Kun-Sang Kim	Korea Institute for Healthcare Accreditation
	Ki Keun Oh	
	Joo Hyeong Oh	Kyung Hee University Medical Center
	Hye-Kyung Yoon	Asan Medical Center
	Kyung Nam Ryu	Kyung Hee University Medical Center
	Joon-Il Choi	Seoul St. Mary's Hospital

# KSUM Open 2014 Program at a Glance

Time	Day 1 May 23 (Fri)				Day 2 May 24 (Sat)				Time			
		GBR 101	GBR 102	GBR 103	Room 203		GBR 101	GBR 102	GBR 103	Room 203		
07:40	Registration & Technical Exhibition	Meet the Professor Session (PED)	Meet the Professor Session (GU)	Meet the Professor Session (ABD)		Registration & Technical Exhibition	Meet the Professor Session (BR)	Meet the Professor Session (MSK)	Meet the Professor Session (THY)		07:40	
08:00		Break					Break				08:00	
08:30		Categorical Course (PED)	Categorical Course (GU)	Categorical Course (ABD)	Categorical Course (PHY by KMUL)		Categorical Course (BR)	Categorical Course (MSK)	Categorical Course (THY)	전공의 연수 교육 Practice Workshop	08:30	
09:00											09:00	
09:30		09:30										
10:00		09:30										
10:30		Coffee Break					Coffee Break				10:00	
11:00		Scientific Session (PED / GU)	Special Focus Session (CEUS)	Special Focus Session (ABD)	Special Focus Session (PHY - Photoacoustic)		Special Focus Session (BR)	Special Focus Session (MSK)	Scientific Session (HN / THY)		10:30	
11:30											11:00	
12:00		General Assembly & Luncheon					Annual Meeting of KMUL & Luncheon	Luncheon Session (BRACCO)			Luncheon Session (TOSHIBA)	11:30
12:30												12:00
13:00		Special Focus Session (PED)	Special Focus Session (GU)	Scientific Session (ABD / YIA)	Invited Talk (PHY)		Scientific Session (BR / MSK)	Special Focus Session (CV)	Special Focus Session (HN)		12:30	
13:30										13:00		
14:00		Coffee Break					Coffee Break				13:30	
14:30							Jisan Lecture	Hands on Session (Fusion Imaging)	Categorical Course (CV)	Scientific Session (THY)	14:00	
15:00											14:30	
15:30							Interactive Case Review				15:00	
16:00											15:30	
16:30					History of Ultrasound				15:30			
17:00									16:00			
17:30								16:30				
18:00								17:00				
18:30	Congress Dinner (Place: Hall E5-6)								17:30			
19:00									18:00			
19:30									18:30			
20:00									19:00			
20:30									19:30			
21:00									20:00			
									20:30			
	21:00											

\* All sessions will be conducted in English except General Assembly and Practice Workshop (Grand Ballroom-101, 102, 103 / Room 203)

모든 세션은 영어로 진행됩니다. 단, 총회와 연수교육은 한국어로 진행됩니다.

# Scientific Program Overview

## Scientific Programs

- Categorical Course
- History of Ultrasound
- Jisan Lecture
- Practice Workshop (for Residents and Trainees)
- Scientific Session
- Case of the Day (Quiz)
- Interactive Case Review
- Luncheon Session
- Special Focus Session
- Hands on Session
- Invited Talk
- Meet the Professor Session
- Scientific Exhibition

## Topic / Session Abbreviation

ABD	Abdomen	CC	Categorical Course
BR	Breast	HS	Hands on Session
CV	Cardiovascular	HU	History of Ultrasound
GU	Genitourinary	ICR	Interactive Case Review
HN	Head & Neck	IT	Invited Talk
MSK	Musculoskeletal	JL	Jisan Lecture
PED	Pediatrics	LS	Luncheon Session
PHY	Physics	MPS	Meet the Professor Session
THY	Thyroid	PW	Practice Workshop
YIA	Young Investigator Award	SE	Scientific Exhibition
		SFS	Special Focus Session
		SS	Scientific Session

## Scientific Exhibition (Electronic poster display only)

Place	Exhibition Hall, Grand Ballroom 104-105 (1F)
Date & Time	May 23 (Fri) 08:00-18:00 May 24 (Sat) 08:00-17:00

## Case of the Day (Quiz)

Do not miss the opportunity to be the winner of the Ultrasound Image Quiz! You may participate until 1 p.m., May 24 (Sat) only.

Place	Scientific Exhibition Area (Exhibition Hall, Grand Ballroom 104-105, 1F)
Date & Time	<b>[Participation in the Quiz]</b> May 23 (Fri) 08:00-18:00   May 24 (Sat) 08:00-13:00 <b>[Announcement of Winner]</b> After 16:00, May 24 (Sat), the winner will be announced in the Scientific Exhibition Area

## Interactive Case Review

Rise up to the challenge. You may win of amazing prizes!

Place	Grand Ballroom 103 (1F)
Date & Time	May 23 (Fri) 16:30-17:50
Moderator	Bo Kyoung Seo (Korea University Ansan Hospital, Korea)
Panelist	Hyun Cheol Kim (Kyung Hee University Hospital at Gangdong, Korea)
	Bo Kyung Seo (Korea University Ansan Hospital, Korea)
	Sung Il Jung (Konkuk University Medical Center, Korea)
	Sun Joo Lee (Inje University Pusan Paik Hospital, Korea)
	Young Ah Cho (Asan Medical Center, Korea)
	Kwang Hwi Lee (Inje University Haeundae Paik Hospital, Korea)

## Hands on Session

A big chance to get a hands-on experience of Fusion Imaging with equipment from three companies! Those who applied for the session in advance should come up to the Grand Ballroom 101 on time.

Place	Grand Ballroom 101 (1F)
Date & Time	May 24 (Sat) 15:20-17:10
Moderator	Jae Young Lee (Seoul National University Hospital, Korea)
Instructor	Min Woo Lee (Samsung Medical Center, Korea)
	Jin Woong Kim (Chonnam National University Hwasun Hospital, Korea)
	Min Hee Lee (Soonchunhyang University Bucheon Hospital, Korea)

## Luncheon Session

### Bracco Imaging Korea

Place	Grand Ballroom 101-102 (1F)
Date & Time	May 24 (Sat) 12:00-13:00
Chair	Byung Ihn Choi (Seoul National University Hospital, Korea)
Speaker	Kyung Won Kim (Asan Medical Center, Korea)
	Sang IL Choi (Seoul National University Bundang Hospital, Korea)

### Toshiba Medical Systems Korea Co., Ltd

Place	Grand Ballroom 103 (1F)
Date & Time	May 24 (Sat) 12:00-13:00
Chair	Joon Koo Han (Seoul National University Hospital, Korea)
Speaker	Jae Young Lee (Seoul National University Hospital, Korea)



## Instructions for Invited Speakers and Scientific Session Presenters

All invited speakers and Scientific Session presenters MUST check and submit their Power-Point presentation files in the Preview Room (on your left inside the Exhibition Hall, Grand Ballroom 104-105) at least an hour before their scheduled presentation time. This is the way we can be sure that you are present and that you are aware of any last-minute instructions or changes concerning your session. All presenters should prepare their presentation files in MS Power-Point format, and upload them onto the Preview Room computers that are connected with the session room computers.

### Security Policy

All presenting files will be kept safe before and after the presentations from any access. If you do not delete your file by yourself after your presentation, it will be automatically deleted after the Congress.

## Invited Speakers

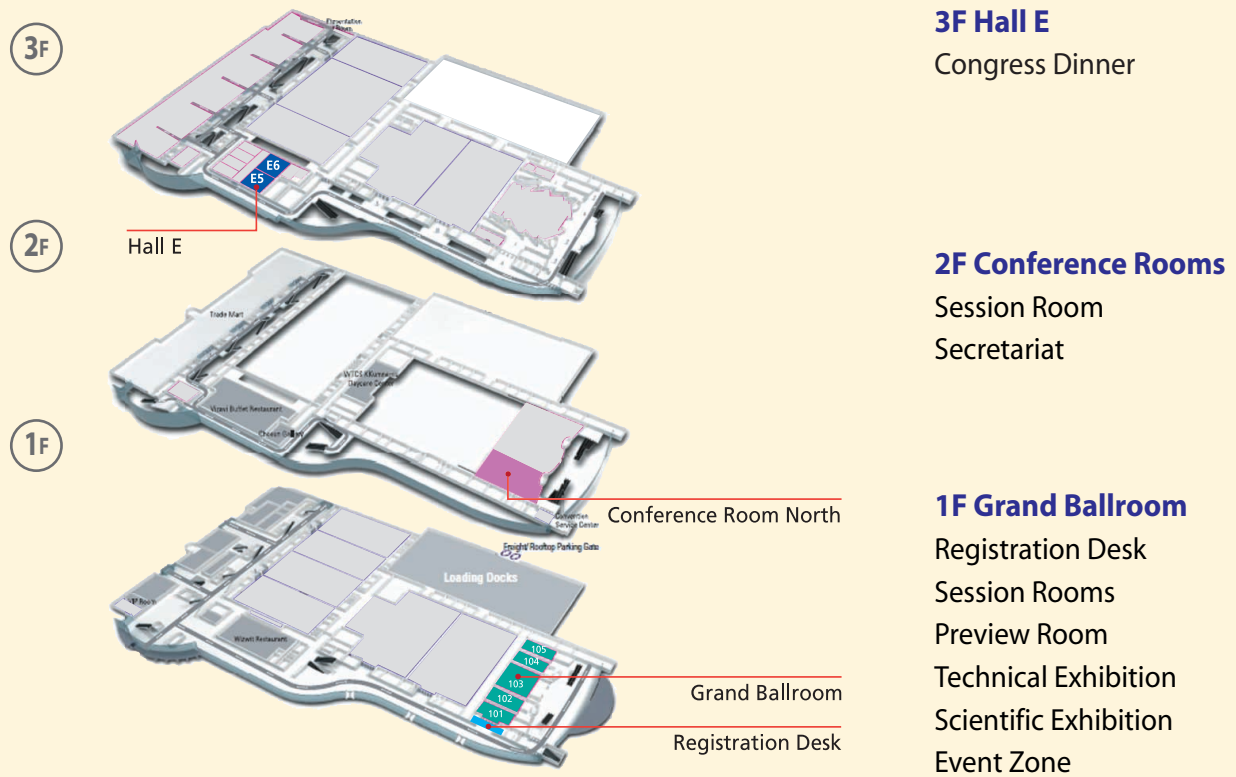
Wei Min Chai	China	Sung Il Jung	Korea	Min Woo Lee	Korea
Jin Ho Chang	Korea	Bong Joo Kang	Korea	Sun Joo Lee	Korea
Jung-Eun Cheon	Korea	Chulhong Kim	Korea	Sung Moon Lee	Korea
Hong-Jen Chiou	Taiwan	Hyun Cheol Kim	Korea	Won Jae Lee	Korea
Bum Sang Cho	Korea	Ji Eun Kim	Korea	Young Joon Lee	Korea
Eun-Suk Cho	Korea	Jin Hee Kim	Korea	Pai-Chi Li	Taiwan
Jeong Yeon Cho	Korea	Jin Woong Kim	Korea	Hyun Kyung Lim	Korea
Kil-Ho Cho	Korea	Kyung Won Kim	Korea	Eric Kin Hung Liu	Hong Kong
Nariya Cho	Korea	Mi-hyun Kim	Korea	Jianwen Luo	China
Young ah Cho	Korea	Min Ju Kim	Korea	Hee Jung Moon	Korea
Byung Ihn Choi	Korea	Min Jung Kim	Korea	Harvey L. Nisenbaum	USA
Ji Soo Choi	Korea	Sang Youn Kim	Korea	Hyun Jeong Park	Korea
Jung-Ah Choi	Korea	See Hyung Kim	Korea	Min Jung Park	Korea
Min Joo Choi	Korea	Seung Hyup Kim	Korea	Sung Bin Park	Korea
Sang Il Choi	Korea	Sun Mi Kim	Korea	Jonathan Rubin	USA
Soo-Jung Choi	Korea	Kyung Won Kim	Korea	Yoshifumi Saijo	Japan
Young Hun Choi	Korea	You Me Kim	Korea	Bo Kyoung Seo	Korea
Young Jun Choi	Korea	Alexander Klivanov	USA	Sung Eun Song	Korea
Ki Seok Choo	Korea	Eun Sook Ko	Korea	Tai-kyong Song	Korea
Eun Ju Chun	Korea	Tatsuo Kono	Japan	Jin Yong Sung	Korea
Kyung Ah Chun	Korea	Se Hwan Kwon	Korea	Giovanni Turtulici	Italy
Hye Won Chung	Korea	Choong Wook Lee	Korea	Hyun Sik Woo	Korea
You-Bin Deng	China	Eun Sun Lee	Korea	Okhee Woo	Korea
Hong Eo	Korea	Ha Young Lee	Korea	Wei Yang	USA
Eun Ju Ha	Korea	Hee Jung Lee	Korea	Suk Keu Yeom	Korea
Jae Youn Hwang	Korea	Hyun Lee	Korea	Jae Hyuck Yi	Korea
Woo Kyoung Jeong	Korea	Jae Young Lee	Korea	Yangmo Yoo	Korea
Ijin Joo	Korea	Jungwoo Lee	Korea	Ji Hyun Youk	Korea
Seung Eun Jung	Korea	Kwang Hwi Lee	Korea	Alfred Yu	Hong Kong
So Lyung Jung	Korea	Min Hee Lee	Korea		

# Chairpersons

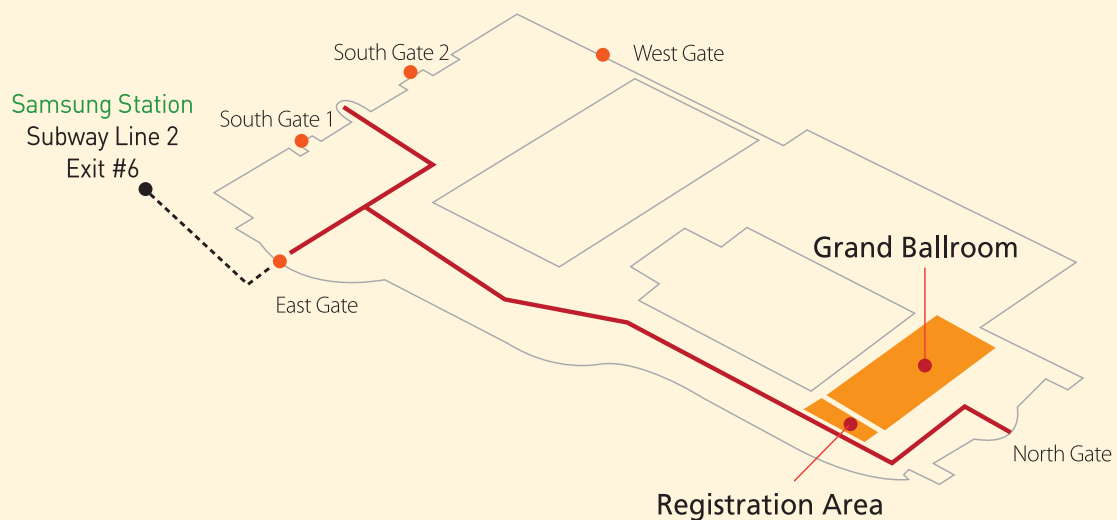
Jung Hwan Baek	Korea	Myung-Joon Kim	Korea	Woo Kyung Moon	Korea
Wei Min Chai	China	Seong Hyun Kim	Korea	Dong Gyu Na	Korea
Jin Ho Chang	Korea	Tae Hoon Kim	Korea	Young Taik Oh	Korea
Jeong Yeon Cho	Korea	Yongsoo Kim	Korea	Dong-guk Paeng	Korea
June-Sik Cho	Korea	Eun Young Ko	Korea	Jeong Seon Park	Korea
Kyu Ran Cho	Korea	Jin Young Kwak	Korea	Sung Eun Rha	Korea
Yeon Hyeon Choe	Korea	Sung-Jae Kwon	Korea	Hunkyu Ryeom	Korea
Byung Ihn Choi	Korea	Bae Young Lee	Korea	Jeong Ah Ryu	Korea
Chul Soon Choi	Korea	Hak Jong Lee	Korea	Bo Kyoung Seo	Korea
Hye-Young Choi	Korea	Hee Jung Lee	Korea	Sang Soo Shin	Korea
Hyuck Jae Choi	Korea	Jae Young Lee	Korea	Tai-kyong Song	Korea
Jung-Ah Choi	Korea	Jeong Hyun Lee	Korea	Mi Sook Sung	Korea
Kyung Ah Chun	Korea	Joon Hyung Lee	Korea	Dal Mo Yang	Korea
Hwan Hoon Chung	Korea	Min Hee Lee	Korea	Wei Yang	USA
Boo-Kyung Han	Korea	Sang Yong Lee	Korea	Yangmo Yoo	Korea
Joon Koo Han	Korea	Sung Moon Lee	Korea	Choon-Sik Yoon	Korea
Chan Kyo Kim	Korea	Won Jae Lee	Korea	Seong Kuk Yoon	Korea
Dong Wook Kim	Korea	Young Hen Lee	Korea	Young Cheol Yoon	Korea
Eun-Kyung Kim	Korea	Hyo-Keun Lim	Korea	Jeong-Sik Yu	Korea
Hak Hee Kim	Korea	Min Hoan Moon	Korea		

# Congress Information

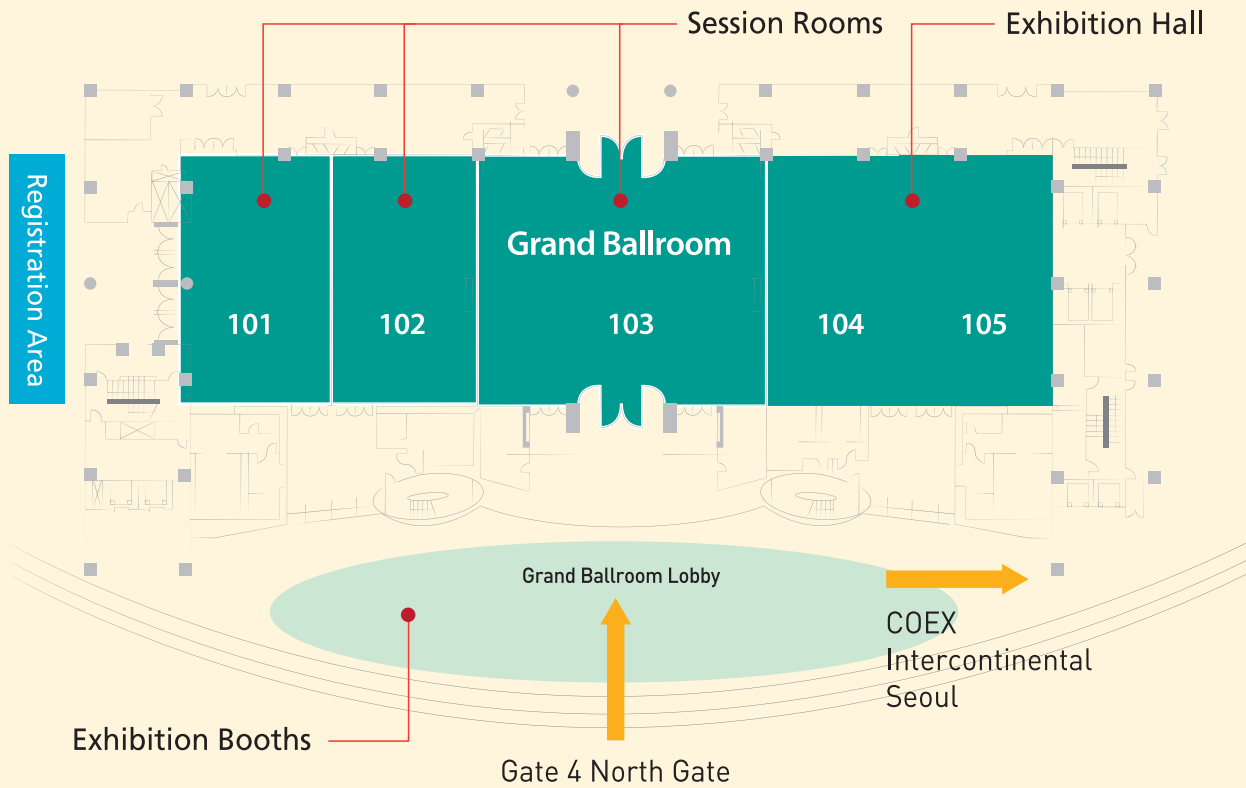
## Floor Plan



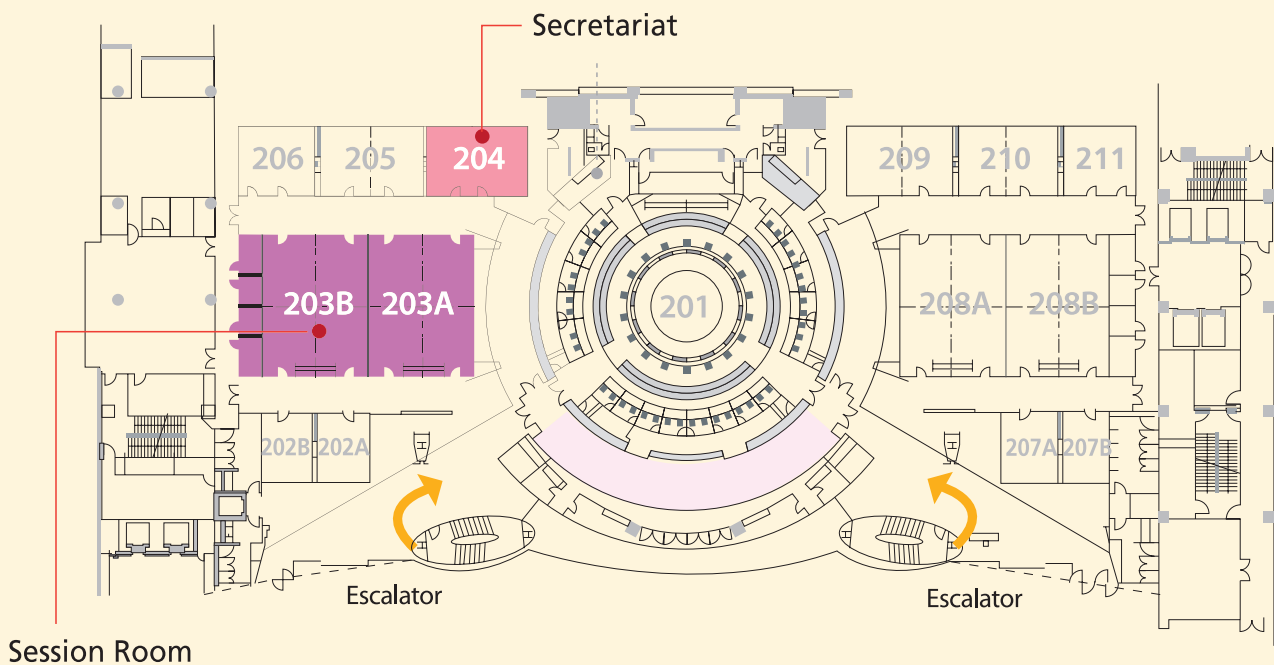
### 1st Floor



## 1st Floor



## 2nd Floor





## Registration Desk

To save your time in the waiting line at the registration desk on-site, please bring the printed barcode with you to the registration desk.

Place	Grand Ballroom Left-Lobby (1F)
Operating Hours	May 23 (Fri) 07:00-18:30
	May 24 (Sat) 07:00-17:30

## Registration Fee Includes

- Access to sessions (Hands-on Session is only for those who have registered for the session in advance)
- Access to Exhibition Hall
- Congress kit
- Program book
- Coffee breaks

\*Please note that the abstract books will not be published in print and distributed at the Congress on site. If you wish to view the abstract book, please visit the KSUM Open 2014 website (<http://2014.ksum.or.kr>).

## Certificate of Attendance

All participants are able to download and print out a certificate of attendance at My Page of the KSUM Open 2014 website (<http://2014.ksum.or.kr>). This service will be available after the Congress.

## Preview Room

Place	On your left inside the Exhibition Hall, Grand Ballroom 104-105 (1F)
Date & Time	May 23 (Fri) 07:00-18:00
	May 24 (Sat) 07:00-17:00

- Speakers and oral presentation speaker should visit and check your presentation file in the Preview Room at least **an hour before your session starts** to ensure that your presentation file appears properly.
- If your presentation contains animations or short movies, please make sure to check over all the technical matters **four hours prior to your session**.
- If you bring your own laptop, especially MAC, please visit the Preview Room to check its compatibility with our technical system.

## Luncheon & Coffee Breaks

### Luncheon

Lunch will be served according to the following schedule:

Date & Time	Place	Program
May 23 (Fri) 12:00-13:00	Grand Ballroom 103 (1F)	General Assembly of KSUM
	Room 203 (2F)	Annual Meeting of KMUL
May 24 (Sat) 12:00-13:00	Grand Ballroom 101-102 (1F)	Luncheon Session (Bracco)
	Grand Ballroom 103 (1F)	Luncheon Session (Toshiba)

### Coffee Breaks

Place	Grand Ballroom Lobby (1F)
Date & Time	May 23 (Fri) - 24 (Sat) 10:00-10:30 / 14:50-15:20

## Event Zone (Coffee Station, Caricatures, Photo Zone)

Place	Exhibition Hall, Grand Ballroom 104-105 (1F)
Operating Hours	May 23 (Fri) 09:00-18:00
	May 24 (Sat) 09:00-17:00

All registered participants may have free coffee at the Coffee Station and also enjoy caricature drawings and experience traditional Korean costumes in the Event Zone during the Congress. Photo service is offered to all participants who try on the traditional Korean costumes.

## My Unforgettable Ultrasound Exhibition

Place	Exhibition Hall, Grand Ballroom 104-105 (1F)
Operating Hours	May 23 (Fri) 08:00-18:00
	May 24 (Sat) 08:00-16:00

The winning photographs of the Gold, Silver, and Bronze awards will be exhibited in the Exhibition Hall during the Congress.

## Official Programs

### KSUM General Assembly & Luncheon

KSUM General Assembly & Luncheon will be conducted in Korean.

Place	Grand Ballroom 103 (1F)
Operating Hours	May 23 (Fri) 12:00-13:20

### Congress Dinner

The Congress Dinner will provide you with a great opportunity to socialize with leading experts and enjoy excellent dishes. There will be memorable events, a performance by a female vocalist, and a Lucky Draw at the end of the dinner. For those who would like to attend, please apply for the Congress Dinner at the registration desk. As tickets are limited, please purchase them in advance.

Place	Hall E5-6 (3F)
Operating Hours	May 23 (Fri) 18:10-21:00

## Scientific Awards

### Young Investigator Award

\* Awarded to presenters (under the age of 40) of the abstracts selected as the most outstanding for the oral presentation.

\* Selected abstracts will be presented at the Scientific Session of YIA and evaluated after the session.

Category	Award	
Grand Prix	USD 500 / KRW 500,000 (1 winner)	International / Korean
Gold	USD 300 / KRW 300,000 (2 winners)	

## Best Poster Award

Awarded to primary authors of selected scientific exhibitions based on peer review of the scientific content of the presentations.

Category	Award	
Grand Prix	USD 500 / KRW 500,000 (1 winner)	International / Korean
Gold	USD 300 / KRW 300,000 (2 winners)	
Silver	USD 200 / KRW 200,000 (3 winners)	
Bronze	USD 100 / KRW 100,000 (4 winners)	

## Presenter Award

- \* Awarded to all Korean presenters of abstracts accepted for presentation at the scientific presentation or exhibition.
- \* The Presenter Award is given only once to the presenting author regardless of the number of accepted abstracts or co-authors.

Category	Award	
Oral Presenter	100% of Registration Fee Refund	Korean Only
Poster Presenter	50% of Registration Fee Refund	

## International Grant Award

- \* Awarded to all non-Korean presenters of the abstracts accepted for presentation at the scientific presentation or exhibition.
- \* The International Grant Award is given only once to the presenting author regardless of the number of accepted abstracts or co-authors.

Award	
USD 500	International Only

## Sponsors

The Organizing Committee of KSUM Open 2014 gratefully acknowledges the sponsorship by following companies.

### Gold



### Silver



### Bronze

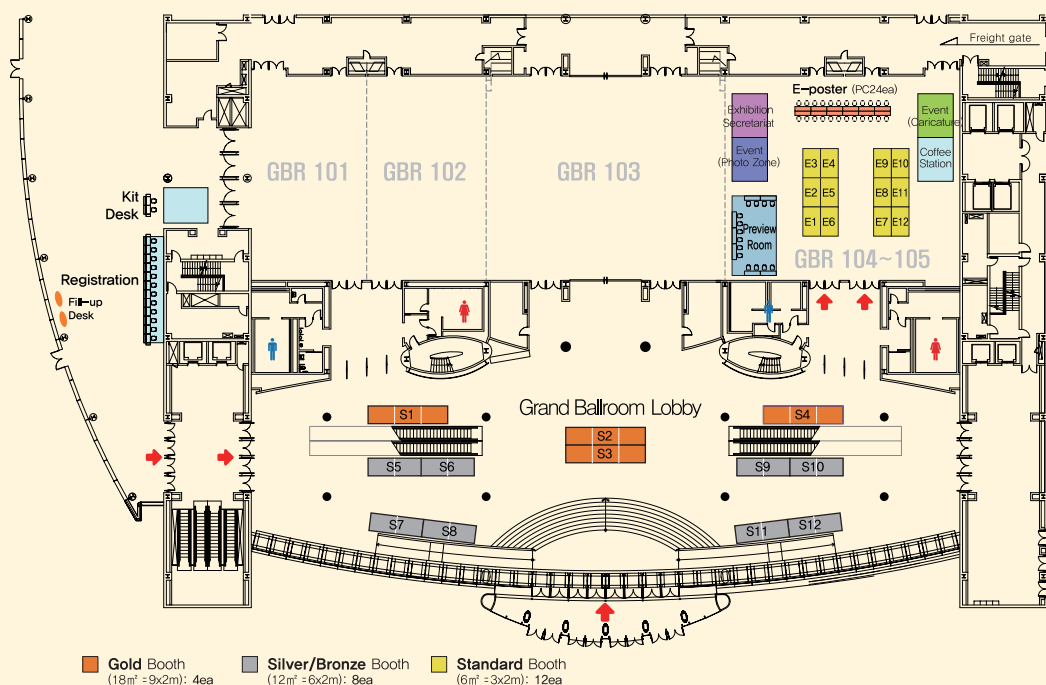


### Supporting Organization





# Exhibition Layout



Booth No.	Company Name	Booth No.	Company Name
S 1	Bayer Healthcare	E 1	MEDAS
S 2	Toshiba Medical Systems Korea Co., LTD	E 2	LG Life Sciences
S 3	GE Healthcare Korea	E 3	Bard Korea
S 4	Samsung Medison	E 4	KYOTO KAGAKU CO., LTD
S 5	Guerbet Korea	E 5	Mallinckrodt/Reyon Pharm
S 6	Bracco Imaging Korea	E 6	DAEWOONG PHARMACEUTICAL CO., LTD.
S 7	Philips	E 7 & 8	HITACHI ALOKA MEDICAL KOREA, LTD
S 8	Central Medical Service Co., Ltd	E 9	WIN INTERNATIONAL Co., Ltd
S 9	Dongkook Pharmaceutical	E 10	DAEHAN Medical Publishing
S 10	ACCUZEN	E 11	Hansol Medical
S 11	WITHHEALTHCARE	E 12	SAEJONG MEDICAL BOOKS
S 12	SIEMENS		

Place	Grand Ballroom Lobby & Grand Ballroom 104-105 (1F)
Operating Hours	May 23 (Fri) 08:00-18:00 May 24 (Sat) 08:00-17:00

## Exhibition Tour Passport

Please visit the exhibition booths and collect a stamp from each booth. You will have the opportunity to get a prize by handing in the completed passport to the Exhibition Secretariat. All participants who registered for the KSUM Open 2014 are most welcome to visit the Technical Exhibition.

\* Gifts will be given to 100 people each day on a first-come, first-served basis.

## Scientific Programs

\* The online pdf file page is indicated on the right side of each lecture title.

### Day 1 (Friday, 23 May)

#### Meet the Professor Session

##### Pediatric Intussusception

**07:40 - 08:20** **GBR 101**

**Chairperson:**

**Hee Jung Lee** *Keimyung University Dongsan Medical Center, Korea*

- MPS 1 PED-1** **07:40 - 08:20**  
**US-Guided Reduction of Intussusception: Pearls and Pitfalls** **21**  
 Tatsuo Kono  
*Department of Radiology, Tokyo Metropolitan Children's Medical Center, Japan*

##### Genitourinary GU Biopsy

**07:40 - 08:20** **GBR 102**

**Chairpersons:**

**Hyuck Jae Choi** *Asan Medical Center, Korea*

**Min Hoan Moon** *SMG-SNU Boramae Medical Center, Korea*

- MPS 2 GU-1** **07:40 - 08:00**  
**Current Status of Transrectal Ultrasound Biopsy in Prostate Cancer** **22**  
 See Hyung Kim  
*Department of Radiology, Keimyung University Dongsan Medical Center, Korea*
- MPS 2 GU-2** **08:00 - 08:20**  
**US-Guided Kidney Biopsy** **27**  
 Mi-hyun Kim  
*Department of Radiology, Asan Medical Center, Korea*

##### Abdomen Rectum Evaluation for Tumorous & Non-tumorous Conditions

**07:40 - 08:20** **GBR 103**

**Chairpersons:**

**Chul Soon Choi** *Kangdong Sacred Heart Hospital, Korea*

**Seong Hyun Kim** *Samsung Medical Center, Korea*

- MPS 3 ABD-1** **07:40 - 08:00**  
**Transrectal USG: Pros and Cons** **28**  
 Min Ju Kim  
*Department of Radiology, Korea University Anam Hospital, Korea*
- MPS 3 ABD-2** **08:00 - 08:20**  
**Rectal MRI: Pros and Cons** **30**  
 Min Jung Park  
*Department of Radiology, Severance Hospital, Korea*

#### Categorical Course

##### Pediatric Problem Solving US

**08:30 - 10:00** **GBR 101**

**Chairperson:**

**Hee Jung Lee** *Keimyung University Dongsan Medical Center, Korea*

- CC 1 PED-1** **08:30 - 09:00**  
**Problem Solving USG: Jaundice** **31**  
 Hee Jung Lee  
*Department of Radiology, Keimyung University Dongsan Medical Center, Korea*
- CC 1 PED-2** **09:00 - 09:30**  
**Problem Solving US: Abdominal Pain** **36**  
 Hong Eo  
*Department of Radiology, Samsung Medical Center, Korea*
- CC 1 PED-3** **09:30 - 10:00**  
**Problem Solving US: Scrotal and Inguinal Swelling** **38**  
 Young Ah Cho  
*Department of Radiology, Asan Medical Center, Korea*

##### Genitourinary GU Practical Ultrasound

**08:30 - 10:00** **GBR 102**

**Chairpersons:**

**Young Taik Oh** *Severance Hospital, Korea*

**Seong Kuk Yoon** *Dong-A Medical Center, Korea*

- CC 2 GU-1** **08:30 - 08:50**  
**Penile USG** **39**  
 Sang Youn Kim  
*Department of Radiology, Seoul National University Hospital, Korea*
- CC 2 GU-2** **08:50 - 09:10**  
**US of the Scrotum** **43**  
 Bum Sang Cho  
*Department of Radiology, Chungbuk National University Hospital, Korea*
- CC 2 GU-3** **09:10 - 09:30**  
**US of the Inguinal Area** **55**  
 Eun-Suk Cho  
*Department of Radiology, Gangnam Severance Hospital, Korea*
- CC 2 GU-4** **09:30 - 09:50**  
**US of the Prostate** **58**  
 Hyun Lee  
*Department of Radiology, Hallym University Sacred Heart Hospital, Korea*

## Abdomen Beyond Routine Abdominal US

**08:30 - 10:00** **GBR 103**

### Chairpersons:

**June-Sik Cho** *Chungnam National University Hospital, Korea*  
**Hunky Ryeom** *Kyungpook National University Hospital, Korea*

- CC 3 ABD-1** **08:30 - 09:00**  
**Abdominal US at Emergency Department** **59**  
 Choong Wook Lee  
*Department of Radiology, Asan Medical Center, Korea*
- CC 3 ABD-2** **09:00 - 09:30**  
**Abdominal US at Operation Room** **64**  
 Ijin Joo  
*Department of Radiology, Seoul National University Hospital, Korea*
- CC 3 ABD-3** **09:30 - 10:00**  
**Abdominal US at ICU** **65**  
 Eun Sun Lee  
*Department of Radiology, National Cancer Center, Korea*

## Physics by KMUL Imaging Artifacts and Pitfall Errors

**08:30 - 10:00** **Room 203**

### Chairpersons:

**Dong-guk Paeng** *Jeju National University, Korea*  
**Jin Ho Chang** *Sogang University, Korea*

- CC 4 PHY-1** **08:30 - 09:00**  
**Twinkling Artifacts in Ultrasound Color Doppler Imaging** **66**  
 Min Joo Choi  
*Department of Medical Engineering, School of Medicine, Jeju National University, Korea*
- CC 4 PHY-2** **09:00 - 09:30**  
**Artifacts and Pitfall Errors in Ultrasound Spectral Doppler Imaging** **67**  
 Yangmo Yoo  
*Department of Electrical Engineering and Interdisciplinary Program of Integrated Biotechnology, Sogang University, Korea*
- CC 4 PHY-3** **09:30 - 10:00**  
**Artifacts and Pitfall Errors in Ultrasound B-mode Imaging** **68**  
 Jungwoo Lee  
*Department of Electronic Engineering, Kwangwoon University, Korea*

## Special Focus Session

### Contrast-Enhanced Ultrasound

**10:30 - 12:00** **GBR 102**

### Chairpersons:

**Won Jae Lee** *Samsung Medical Center, Korea*  
**Hak Jong Lee** *Seoul National University Bundang Hospital, Korea*

- SFS 1 CEUS-1** **10:30 - 10:55**  
**Molecular US: Basic Principles** **69**  
 Alexander Klibanov  
*Department of Medicine, Cardiovascular Division, University of Virginia, USA*

- SFS 1 CEUS-2** **10:55 - 11:20**  
**Molecular US: US-Guided Targeted Drug or Gene Therapy** **70**  
 Alexander Klibanov  
*Department of Medicine, Cardiovascular Division, University of Virginia, USA*

- SFS 1 CEUS-3** **11:20 - 11:40**  
**Current Status of CEUS in Korea: Liver Application** **71**  
 Min Woo Lee  
*Department of Radiology, Samsung Medical Center, Korea*

- SFS 1 CEUS-4** **11:40 - 12:00**  
**Current Status of CEUS in Korea: Kidney Application** **72**  
 Jeong Yeon Cho  
*Department of Radiology, Seoul National University Hospital, Korea*

## Abdomen US Elastography

**10:30 - 12:00** **GBR 103**

### Chairpersons:

**Yongsoo Kim** *Hanyang University Guri Hospital, Korea*  
**Jae Young Lee** *Seoul National University Hospital, Korea*

- SFS 2 ABD-1** **10:30 - 11:00**  
**Basic Physics of Elastography** **74**  
 Hyunsik Woo  
*Department of Radiology, SMG-SNU Boramae Medical Center, Korea*
- SFS 2 ABD-2** **11:00 - 11:30**  
**Clinical Application of Acoustic Radiation Force Impulse (ARFI) Elastography: Quantification of Hepatic Fibrosis & Characterization of Hepatic SOLs** **83**  
 Ji Eun Kim  
*Department of Radiology, Gyeongsang National University Hospital, Korea*
- SFS 2 ABD-3** **11:30 - 12:00**  
**Clinical Application of US Elastography: Extrahepatic Application Including Inflammatory Bowel Diseases** **85**  
 Jonathan M. Rubin  
*Department of Radiology, University of Michigan, USA*

## Physics - Photoacoustic Clinical Applications of Photoacoustics

**10:30 - 12:00** **Room 203**

### Chairperson:

**Tai-kyong Song** *Sogang University, Korea*

- SFS 3 PHY-1** **10:30 - 11:00**  
**Ultrasound and Photoacoustic Dual Modality Molecular Imaging and Enhanced Targeted Photothermal Therapy** **90**  
 Pai-Chi Li  
*Department of Electrical Engineering, National Taiwan University, Taiwan*
- SFS 3 PHY-2** **11:00 - 11:30**  
**Listening to Shiny Body: In Vivo Photoacoustic Tomography** **91**  
 Chulhong Kim  
*Department of Creative IT Engineering, Pohang University of Science and Technology, Korea*
- SFS 3 PHY-3** **11:30 - 12:00**  
**A Trimodal In Vivo Imaging System: Fluorescence, Photoacoustic, and Ultrasound Imaging** **94**  
 Jin Ho Chang  
*Interdisciplinary Program of Integrated Biotechnology and Department of Electronic Engineering, Sogang University, Korea*

## Pediatric Prenatal and Postnatal US

**13:20 - 14:50** **GBR 101**

### Chairperson:

**Myung-Joon Kim** *Severance Hospital, Korea*

- SFS 4 PED-1** **13:20 - 13:50**  
**Ultrasound of Umbilical and Periumbilical Lesions in Newborn** **95**  
 Tatsuo Kono  
*Department of Radiology, Tokyo Metropolitan Children's Medical Center, Japan*
- SFS 4 PED-2** **13:50 - 14:20**  
**Hydronephrosis in Neonates** **96**  
 Young Hun Choi  
*Department of Radiology, Seoul National University Children's Hospital, Korea*
- SFS 4 PED-3** **14:20 - 14:50**  
**Postnatal Imaging of Neonates with Prenatal US Abnormalities** **100**  
 Jung-Eun Cheon  
*Department of Radiology, Seoul National University Children's Hospital, Korea*

## Genitourinary GU Emergency Ultrasound

**13:20 - 14:50** **GBR 102**

### Chairpersons:

**Jeong Yeon Cho** *Seoul National University Hospital, Korea*

**Sung Eun Rha** *The Catholic University of Korea, Seoul St. Mary's Hospital, Korea*

- SFS 5 GU-1** **13:20 - 13:40**  
**US in Acute Scrotal Pain** **103**  
 Harvey L. Nisenbaum  
*Department of Radiology, Penn Presbyterian Medical Center (PPMC), USA*
- SFS 5 GU-2** **13:40 - 14:00**  
**Acute Pelvic Pain: Obstetric** **107**  
 Sung Bin Park  
*Department of Radiology, Chung-Ang University Hospital, Korea*
- SFS 5 GU-3** **14:00 - 14:20**  
**Acute Pelvic Pain: Gynecologic** **113**  
 You Me Kim  
*Department of Radiology, Dankook University Hospital Korea*
- SFS 5 GU-4** **14:20 - 14:40**  
**Acute Pelvic Pain, Non OBGY Etiology** **114**  
 Young Joon Lee  
*Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea*

## General Assembly & Luncheon

**12:00-13:20** **GBR 103**

## Annual Meeting of KMUL & Luncheon

**12:00-13:00** **Room 203**

## Invited Talk

### Physics Advanced Ultrasound Imaging Techniques

**13:00 - 15:00** **Room 203**

### Chairpersons:

**Yangmo Yoo** *Sogang University, Korea*

**Sung-Jae Kwon** *Daejin University, Korea*

- IT 1 PHY-1** **13:00 - 13:20**  
**Synthetic Aperture Imaging** **116**  
 Tai-kyong Song  
*Department of Electronic Engineering, Sogang University, Korea*
- IT 1 PHY-2** **13:20 - 13:40**  
**Color Encoded Speckle Imaging of Blood Flow Dynamics** **117**  
 Alfred Yu  
*Department of Electrical and Electronic Engineering, University of Hong Kong, Hong Kong*
- IT 1 PHY-3** **13:40 - 14:00**  
**Fast Flow Vortex Imaging** **118**  
 Yangmo Yoo  
*Department of Electronic Engineering and Interdisciplinary Program of Integrated Biotechnology, Sogang University, Korea*
- IT 1 PHY-4** **14:00 - 14:20**  
**Carotid Strain Imaging for Risk Assessment of Atherosclerotic Plaques** **119**  
 Jianwen Luo  
*Department of Biomedical Engineering, Tsinghua University, China*
- IT 1 PHY-5** **14:20 - 14:40**  
**High Frequency Ultrasound Imaging and Its Application in Clinical Medicine** **120**  
 Yoshifumi Saijo  
*Graduate School of Biomedical Engineering, Tohoku University, Japan*
- IT 1 PHY-6** **14:40 - 15:00**  
**High Frequency Ultrasound Microbeam toward Cancer Research** **121**  
 Jae Youn Hwang  
*Department of Information and Communication Engineering Daegu Gyeongbuk Institute of Science & Technology (DGIST), Korea*

## Jisan Lecture

**15:20 - 16:30** **GBR 103**

### Chairperson:

**Hyo-Keun Lim** *Samsung Medical Center, Korea*

- JL-1** **15:20 - 15:50**  
**US- Important Element in Medical School Education** **122**  
 Harvey L. Nisenbaum  
*Department of Radiology, Penn Presbyterian Medical Center, USA*
- JL-2** **15:50 - 16:20**  
**Musculoskeletal Ultrasound: Past, Present and Future** **123**  
 Kil-Ho Cho  
*Department of Radiology, Yeungnam University Medical Center, Korea*

## Interactive Case Review

16:30 - 17:50

GBR 103

### Chairperson:

**Bo Kyoung Seo** *Korea University Ansan Hospital, Korea*

### ICR

#### Abdomen

Hyun Cheol Kim

*Department of Radiology, Kyung Hee University Hospital at Gangdong, Korea*

#### Breast

Bo Kyoung Seo

*Department of Radiology, Korea University Ansan Hospital, Korea*

#### Genitourinary

Sung Il Jung

*Department of Radiology, Konkuk University Medical Center, Korea*

#### Musculoskeletal

Sun Joo Lee

*Department of Radiology, Inje University Pusan Paik Hospital, Korea*

#### Head & Neck-Thyroid

Kwang Hwi Lee

*Department of Radiology, Inje University Haeundae Paik Hospital, Korea*

#### Pediatric

Young ah Cho

*Department of Diagnostic Radiology, Asan Medical Center, Korea*

## History of Ultrasound

### History of Ultrasound in the World and in Korea

16:30 - 18:00

Room 203

### Chairperson:

**Joon Koo Han** *Seoul National University Hospital, Korea*

### HU-1

16:30 - 16:45

#### History and Archives of WFUMB

306

Seung Hyup Kim

*Department of Radiology, Seoul National University Hospital, Korea*

### HU-2

16:45 - 17:00

#### AFSUMB History

314

Byung Ihn Choi

*Department of Radiology, Seoul National University Hospital, Korea*

### HU-3

17:00 - 17:15

#### History of AIUM

320

Harvey L. Nisenbaum

*Department of Radiology, Penn Presbyterian Medical Center (PPMC), USA*

### HU-4

17:15 - 17:30

#### History of KSUM

323

Won Jae Lee

*Department of Radiology, Samsung Medical Center, Korea*

### HU-5

17:30 - 17:45

#### History of Ultrasound Industry in Korea

327

Tai-kyong Song

*Department of Electronic Engineering, Sogang University, Korea*

## Scientific Sessions

### Pediatric

10:30-11:40

GBR 101

### Chairperson:

**Choon-Sik Yoon** *Gangnam Severance Hospital, Korea*

### SS 1 PED-1

10:30

#### Normal Thickness of Filum Terminale in Young Children on Ultrasonography

211

Hyun Joo Shin, Hyun Gi Kim, Myung-Joon Kim, Mi-Jung Lee

*Department of Radiology, Severance Hospital, Korea*

### SS 1 PED-2

10:40

#### A New Ultrasound Method for the Assessment of Head Shape in Infants with Plagiocephaly

211

Dong-Soon Park, Gi-Young Park, Dong-Rak Kwon, Hee-Kyung Cho

*Department of Rehabilitation Medicine, Daegu Catholic University Medical Center, Korea*

### SS 1 PED-3

10:50

#### US and MR Findings of Limited Dorsal Myeloschisis: Comparison with Congenital Dermal Sinus

212

So Mi Lee, Young Hun Choi, Jung-Eun Cheon, Woo-Sun Kim, In-One Kim, Hyun-Hae Cho

*Department of Radiology, Seoul National University Hospital, Korea*

### SS 1 PED-4

11:00

#### Quantitative Sonographic Texture Analysis in Preterm Infants with White Matter Injury: Correlation of Texture Features with White Matter Injury Severity

212

Sun Kyoung You<sup>1</sup>, Young Hun Choi<sup>2</sup>, Sang Jun Park<sup>2</sup>, Jung Eun Cheon<sup>2</sup>, In One Kim<sup>2</sup>, Woo Sun Kim<sup>2</sup>
<sup>1</sup>Department of Radiology, Chungnam National University Hospital, Korea

<sup>2</sup>Department of Radiology, Seoul National University Hospital, Korea

### SS 1 PED-5

11:10

#### Testicular Teratoma vs. Epidermoid Cyst in Children - Comparison of US Findings

213

Min-Yung Chang, Hyun Joo Shin, Hyun Gi Kim, Myung-Joon Kim, Mi-Jung Lee

*Department of Radiology, Severance Hospital, Korea*

### SS 1 PED-6

11:20

#### Comparative Study of Sonography Guided Hydrostatic Reduction in Between Ileileocolic and Ileocolic Intussusception with Comparison of Complications Between Hydrostatic Reduction and Operative Management

213

Madan Mohan Gupta, Nandini Bahri, Ketan Rathod

*Department of Radiology, MP Shah Medical College, Jamnagar, India*

### SS 1 PED-7

11:30

#### US-Guided Contrast Enema in Meconium Obstruction of Prematurity: Evaluation of Factors That Affect the Treatment Success

214

Hyun-Hae Cho<sup>1</sup>, Young Hun Choi<sup>1</sup>, Jung-Eun Cheon<sup>1</sup>, Su-Mi Shin<sup>2</sup>, So Mi Lee<sup>1</sup>, Sun Kyoung You<sup>3</sup>, Woo Sun Kim<sup>1</sup>, In-One Kim<sup>1</sup>
<sup>1</sup>Department of Radiology, Seoul National University Hospital, Korea

<sup>2</sup>Department of Radiology, Boramae Medical Center, Korea

<sup>3</sup>Department of Radiology, Chungnam National University Hospital, Korea



## Genitourinary

11:40-11:50

GBR 101

### Chairperson:

**Chan Kyo Kim** *Samsung Medical Center, Korea*

SS 1 GU-1

11:40

**B Flow and Color Doppler Examination for the Diagnosis of Varicocele** 215

Hye Ran Hyun, Byung Chul Kang  
*Department of Radiology, Ewha Womans University Mokdong Hospital, Korea*

## Abdomen

13:20-14:20

GBR 103

### Chairpersons:

**Dal Mo Yang** *Kyung Hee University Hospital at Gangdong, Korea*

**Sang Soo Shin** *Chonnam National University Hospital, Korea*

SS 2 ABD-1

13:20

**Accurate Sonographic Differentiation of Bezoar from Feces in Small Bowel Obstruction** 215

Kyung Hoon Lee<sup>1</sup>, Hyun Young Han<sup>1</sup>, Hee Jin Kim<sup>1</sup>,  
Hee Kyung Kim<sup>1</sup>, Moon Soo Lee<sup>2</sup>  
<sup>1</sup>*Department of Radiology, Eulji University Hospital, Korea*  
<sup>2</sup>*Department of Surgery, Eulji University Hospital, Korea*

SS 2 ABD-2

13:30

**Usefulness of On-site-education for the Quality Assurance of Screening Ultrasound Examinations for Hepatocellular Carcinoma: Korean Experience** 216

Joon-Il Choi, Seung Eun Jung, Jae Young Byun  
*Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea*

SS 2 ABD-3

13:40

**Usefulness of Assistant Intercostal Oblique Planar Reformatted CT or MR Images for US Guided Radiofrequency Ablation of Poorly Defined Malignant Hepatic Tumors on B-mode US** 216

SunYoung Park, Young Joon Lee, Joon Il Choi,  
Jae Young Byun  
*Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea*

SS 2 ABD-4

13:50

**The Usefulness with the Combination of Color Doppler and Contrast-Enhanced Harmonic EUS for the Assessment of Visceral Vascular Disease** 217

Jin-Seok Park, Dong-Wan Seo, Tae Jun Song,  
Do Hyun Park, Sang Soo Lee, Sung-Koo Lee,  
Myung-Hwan Kim  
*Department of Internal Medicine-G-I/Hepatology, Asan Medical Center, Korea*

SS 2 ABD-5

14:00

**Ultrasound Elastography in Diagnosis of Acute Appendicitis: Role and Limitations** 217

Sunil Agrawal, Meenu Bagarhatta,  
Nitin Mishra, Vikas Jhanwar  
*Department of Radiology, SMS Medical College and Hospitals, Jaipur, India*

SS 2 ABD-6

14:10

**Shear Wave Elastography as a Non-invasive Parameter to Estimate Esophageal Varices: Comparison with Platelet Count/ Spleen Diameter Ratio** 218

Sanghyeok Lim<sup>1</sup>, Woo Kyoung Jeong<sup>2</sup>,  
Seung Hyun Kim<sup>1</sup>, Yongsoo Kim<sup>1</sup>, Jinoo Kim<sup>3</sup>  
<sup>1</sup>*Department of Radiology, Hanyang University Guri Hospital, Korea*  
<sup>2</sup>*Department of Radiology, Samsung Medical Center, Korea*  
<sup>3</sup>*Department of Radiology, Ajou University Medical Center, Korea*

## Young Investigator Award

14:20-14:50

GBR 103

### Chairperson:

**Jeong-Sik Yu** *Gangnam Severance Hospital, Korea*

SS 2 YIA-1

14:20

**Gel Phantom Study with HIFU: Influence of Metallic Stent Containing Either Air or Fluid** 218

Koung Mi Kang, Jae Young Lee, Haeri Kim,  
Joon Koo Han, Byung-Ihn Choi  
*Department of Radiology, Seoul National University Hospital, Korea*

SS 2 YIA-2

14:30

**Electromagnetic-Tracked Radiofrequency Electrode Under Ultrasound Guidance** 219

Tae Wook Kang, Min Woo Lee  
*Department of Radiology, Samsung Medical Center, Korea*

SS 2 YIA-3

14:40

**High Frame Rate Ultrasound Can Track Fast-Changing Vector Flow Fields in Carotid Bifurcation Models** 219

Billy Y.S. Yiu, Alfred C.H. Yu  
*Department of Medical Engineering, University of Hong Kong, Hong Kong*

## Day 2 (Saturday, 24 May)

### Meet the Professor Session

#### Breast Update in Breast US

**07:40 - 08:20** **GBR 101**

##### Chairpersons:

**Hye-Young Choi** Gachon University Gil Hospital, Korea

**Wei Yang** The University of Texas MD Anderson Cancer Center, USA

**MPS 4 BR-1** **07:40 - 08:00**

**How Helpful is Elastography for Routine Practice?** 124

Ji Hyun Youk

Department of Radiology, Gangnam Severance Hospital, Korea

**MPS 4 BR-2** **08:00 - 08:20**

**Non-invasive Papillary Lesions of the Breast** 131

**Detected on US Comparing with MRI Findings**

Wei Min Chai

Department of Radiology, Ruijin Hospital, Shanghai Jiaotong University School of Medicine, China

#### Musculoskeletal Case Presentation

**07:40 - 08:20** **GBR 102**

##### Chairpersons:

**Young Cheol Yoon** Samsung Medical Center, Korea

**Jung-Ah Choi** Seoul National University Bundang Hospital, Korea

**MPS 5 MSK-1** **07:40 - 08:00**

**Postoperative Ultrasound of Soft Tissues** 133

Jung-Ah Choi

Department of Radiology, Seoul National University Bundang Hospital, Korea

**MPS 5 MSK-2** **08:00 - 08:20**

**Peripheral Nerve Imaging: Case Presentation** 134

Jae Hyuck Yi

Department of Radiology, Kyungpook National University Hospital, Korea

#### Thyroid Navigation Assisted RFA

**07:40 - 08:20** **GBR 103**

##### Chairperson:

**Jung Hwan Baek** Asan Medical Center, Korea

**MPS 6 THY-1** **07:40 - 08:20**

**Navigation Assisted RFA** 138

Giovanni Turtulici

Department of Radiology, International Evangelico Hospital, Italy

### Categorical Course

#### Breast Screening Breast US

**08:30 - 10:00** **GBR 101**

##### Chairpersons:

**Hak Hee Kim** Asan Medical Center, Korea

**Boo-Kyung Han** Samsung Medical Center, Korea

**CC 5 BR-1** **08:30 - 09:00**

**Probably Benign Lesion Detected on Screening** 139

**Breast US**

Eun Sook Ko

Department of Radiology, Samsung Medical Center, Korea

**CC 5 BR-2** **09:00 - 09:30**

**Breast Cancer Detected on Screening Breast US** 140

Nariya Cho

Department of Radiology, Seoul National University Hospital, Korea

**CC 5 BR-3** **09:30 - 10:00**

**Do We Use US BI-RADS Correctly?** 142

Bong Joo Kang

Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea

#### Musculoskeletal US of Upper Extremity

**08:30 - 10:00** **GBR 102**

##### Chairpersons:

**Sung Moon Lee** Keimyung University Dongsan Medical Center, Korea

**Min Hee Lee** Asan Medical Center, Korea

**CC 6 MSK-1** **08:30 - 09:00**

**Nerve Imaging of Upper Extremity** 145

Soo-Jung Choi

Department of Radiology, Gangneung Asan Hospital, Korea

**CC 6 MSK-2** **09:00 - 09:30**

**US Guided Chronic Musculoskeletal Pain Control:** 149

**Upper Limb**

Hong-Jen Chiou

Department of Radiology, Taipei Veterans General Hospital, Taiwan

**CC 6 MSK-3** **09:30 - 10:00**

**Postoperative US: Soft Tissues** 151

Kyung Ah Chun

Department of Radiology, Chungbuk National University Hospital, Korea

#### Thyroid Basic and Update of Thyroid Radiology

**08:30 - 10:00** **GBR 103**

##### Chairpersons:

**Eun-Kyung Kim** Severance Hospital, Korea

**Joon Hyung Lee** Dong-A Medical Center, Korea

**CC 7 THY-1** **08:30 - 08:50**

**Thyroid Nodules, US Evaluation and Biopsy** 154

Eun Ju Ha

Department of Radiology, Ajou University School of Medicine, Korea

<b>CC 7 THY-2</b>	<b>08:50 - 09:10</b>	
<b>Lymph Node Evaluation: US, CT and Biopsy</b> 157		
Hyun Kyung Lim Department of Radiology, Seoul Soonchunhyang University Hospital, Korea		
<b>CC 7 THY-3</b>	<b>09:10 - 09:30</b>	
<b>Parathyroid Lesions, Role of Radiologist</b> 160		
Jin Yong Sung Department of Radiology, Daerim St. Mary's Hospital, Korea		
<b>CC 7 THY-4</b>	<b>09:30 - 09:50</b>	
<b>Pediatric Thyroid Disease (Nodule and Congenital Lesions)</b> 163		
So Lyung Jung Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea		

## Cardiovascular Doppler Ultrasound Lower Leg Arterial System

**15:20 - 16:50** **GBR 102**

### Chairpersons:

**Yeon Hyeon Choe** Samsung Medical Center, Korea  
**Hwan Hoon Chung** Korea University Ansan Hospital, Korea

<b>CC 8 CV-1</b>	<b>15:20 - 15:50</b>	
<b>Lower Leg Artery: Assessment with Doppler US</b> 166		
Sang Il Choi Department of Radiology, Seoul National University Bundang Hospital, Korea		
<b>CC 8 CV-2</b>	<b>15:50 - 16:20</b>	
<b>US Assessment of Medial Arterial Calcification</b> 171		
Eric Kin Hung Liu Department of Radiology, Prince of Wales Hospital, Chinese University of Hong Kong, Hong Kong		
<b>CC 8 CV-3</b>	<b>16:20 - 16:50</b>	
<b>USG Diagnosis of the Lower Leg Arterial Insufficiency</b> 172		
Se Hwan Kwon Department of Radiology, Kyung Hee University Medical Center, Korea		

## Special Focus Session

### Breast Preoperative Breast US

**10:30 - 12:00** **GBR 101**

### Chairpersons:

**Wei Min Chai** Ruijin Hospital, Shanghai Jiaotong University School of Medicine, China  
**Woo Kyung Moon** Seoul National University Hospital, Korea

<b>SFS 6 BR-1</b>	<b>10:30 - 11:00</b>	
<b>Role of Ultrasound in the Staging of Breast Cancer</b> 173		
Wei Yang Department of Diagnostic Radiology, The University of Texas MD Anderson Cancer Center, USA		
<b>SFS 6 BR-2</b>	<b>11:00 - 11:30</b>	
<b>Axillary Lymph Node Evaluation on Breast US</b> 174		
Min Jung Kim Department of Radiology, Severance Hospital, Korea		
<b>SFS 6 BR-3</b>	<b>11:30 - 12:00</b>	
<b>Role of Breast Ultrasonography in the Neoadjuvant Systemic Treatment Setting</b> 176		
Sun Mi Kim Department of Radiology, Seoul National University Bundang Hospital, Korea		

## Musculoskeletal US of Lower Extremity

**10:30 - 12:00** **GBR 102**

### Chairpersons:

**Mi Sook Sung** The Catholic University of Korea, Bucheon St. Mary's Hospital, Korea  
**Kyung Ah Chun** Chungbuk National University Hospital, Korea

<b>SFS 7 MSK-1</b>	<b>10:30 - 11:00</b>	
<b>US in Peripheral Neuropathy: Lower Extremity</b> 177		
Sung Moon Lee Department of Radiology, Keimyung University Dongsan Medical Center, Korea		
<b>SFS 7 MSK-2</b>	<b>11:00 - 11:30</b>	
<b>US Guided Chronic Musculoskeletal Pain Control: Lower Limb</b> 182		
Hong-Jen Chiou Department of Radiology, Taipei Veterans General Hospital, Taiwan		
<b>SFS 7 MSK-3</b>	<b>11:30 - 12:00</b>	
<b>US of Soft Tissue. "Oops Lesions"</b> 184		
Hye Won Chung Department of Radiology, Asan Medical Center, Korea		

## Cardiovascular Systemic Atherosclerosis: Role of Ultrasound

**13:20 - 14:50** **GBR 102**

### Chairpersons:

**Tae Hoon Kim** Gangnam Severance Hospital, Korea  
**Bae Young Lee** St. Paul Hospital, The Catholic University of Korea, Korea

<b>SFS 8 CV-1</b>	<b>13:20 - 13:45</b>	
<b>Carotid Plaque and Thickness: Clinical Significance and Application</b> 186		
Ki Seok Choo Department of Radiology, Pusan National University Yangsan Hospital, Korea		
<b>SFS 8 CV-2</b>	<b>13:45 - 14:10</b>	
<b>Carotid Plaque Neovascularization at Contrast-Enhanced US</b> 188		
You-Bin Deng Department of Medical Ultrasound, Tongji Hospital, Tongji Medical College, Huazhong University of Science And Technology, China		
<b>SFS 8 CV-3</b>	<b>14:10 - 14:35</b>	
<b>Carotid US to Predict Cardiovascular Events: Comparison with CACS and Cardiac MDCT</b> 189		
Eun Ju Chun Department of Radiology, Seoul National University Bundang Hospital, Korea		

## Head & Neck Ultrasound Elastography in the Head and Neck

**13:20 - 14:50** **GBR 103**

### Chairpersons:

**Jeong Seon Park** Hanyang University Medical Center, Korea  
**Young Hen Lee** Korea University Ansan Hospital, Korea

<b>SFS 9 HN-1</b>	<b>13:20 - 13:40</b>	
<b>Basic Physics and Practical Aspects</b> 190		
Ji Soo Choi Department of Radiology, Samsung Medical Center, Korea		

**SFS 9 HN-2** 13:40 - 14:10  
**Ultrasound Elastography: an Assessment of Cervical Lymph Nodes** 192  
Young Jun Choi  
Department of Radiology, Asan Medical Center, Korea

**SFS 9 HN-3** 14:10 - 14:40  
**Ultrasound Elastography: an Assessment of Thyroid Nodules** 196  
Hee Jung Moon  
Department of Radiology, Severance Hospital, Korea

## Luncheon Session

### Bracco Imaging Korea

**12:00 - 13:00** **GBR 101-102**

**Chairperson:**  
**Byung Ihn Choi** Seoul National University Hospital, Korea

**LS 1 BRACCO-1** 12:10 - 12:30  
**Contrast-Enhanced Ultrasound in Liver Transplantation** 198  
Kyoung Won Kim  
Department of Radiology and Research Institute of Radiology, Asan Medical Center, Korea

**LS 1 BRACCO-2** 12:30 - 12:50  
**Contrast-Enhanced Doppler USG: From Aorta to Extremity** 199  
Sang Il Choi  
Department of Radiology, Seoul National University Bundang Hospital, Korea

### Toshiba Medical Systems Korea Co., Ltd

**12:30 - 13:00** **GBR 103**

**Chairperson:**  
**Joon Koo Han** Seoul National University Hospital, Korea

**LS 2 TOSHIBA** 12:10 - 12:50  
**ASQ (Acoustic Structure Quantification) & SMI (Superb Microvascular Imaging)** 200  
Jae Young Lee  
Department of Radiology, Seoul National University Hospital, Korea

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**15:20 - 17:10** **GBR 101**

**Chairperson:**  
**Jae Young Lee** Seoul National University Hospital, Korea

**HS-1** 15:30 - 15:40  
**Volume Navigation** 201  
Min Woo Lee  
Department of Radiology, Samsung Medical Center, Korea

**HS-2** 15:40 - 15:50  
**PercuNav** 205  
Jin Woong Kim  
Department of Radiology, Chonnam National University Hwasun Hospital, Korea

**HS-3** 15:50 - 16:00  
**Smart Fusion** 208  
Min Hee Lee  
Department of Radiology, Soonchunhyang University Bucheon Hospital, Korea

## Scientific Sessions

### Head & Neck

**10:30-11:20** **GBR 103**

**Chairpersons:**  
**Jeong Hyun Lee** Asan Medical Center, Korea  
**Dong Wook Kim** Inje University Pusan Paik Hospital, Korea

**SS 3 HN-1** 10:30  
**Ultrasound Diagnosis of Tuberculous Lymphadenitis in the Neck** 220  
Dong Wook Kim, Jun Ho Park  
Department of Radiology, Inje University Pusan Paik Hospital, Korea

**SS 3 HN-2** 10:40  
**Spinal Accessory Nerve: Ultrasound Findings and Correlation with Neck Lymph Node Levels** 221  
Min Ji Hong, Jung Hwan Baek, Dae Yoon Kim, Woo Jung Choi, Eun Ju Ha, Young Jun Choi, Jeong Hyun Lee  
Department of Radiology, Asan Medical Center, Korea

**SS 3 HN-3** 10:50  
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Kwang Hwi Lee, JiHwa Ryu  
Department of Radiology, Inje University Haeundae Paik Hospital, Korea

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Hye-Joung Eom<sup>1</sup>, Jung Whan Baek<sup>1</sup>, Young Jun Choi<sup>1</sup>, Ra Gyoung Yoon<sup>1</sup>, Kyung-Ja Cho<sup>2</sup>, Soon Yuhl Nam<sup>3</sup>  
<sup>1</sup>Department of Radiology, Asan Medical Center, Korea  
<sup>2</sup>Department of Pathology, Asan Medical Center, Korea  
<sup>3</sup>Department of Otorhinolaryngology, Asan Medical Center, Korea

**SS 3 HN-5** 11:10  
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Young Hen Lee<sup>1</sup>, Ji-Hoon Kim<sup>2</sup>, Dong Gyu Na<sup>3</sup>, So Lyung Jung<sup>4</sup>, Jung Hwan Baek<sup>5</sup>, Eun Joo Ha<sup>5</sup>, S-W Park<sup>6</sup>, Jinna Kim<sup>7</sup>, Tae Jin Yoon<sup>2</sup>  
<sup>1</sup>Department of Radiology, Korea University Ansan Hospital, Korea  
<sup>2</sup>Department of Radiology, Seoul National University Hospital, Korea  
<sup>3</sup>Department of Radiology, Human Medical Imaging and Intervention Center, Korea  
<sup>4</sup>Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea  
<sup>5</sup>Department of Radiology, Asan Medical Center, Korea  
<sup>6</sup>Department of Radiology, Boramae Medical Center, Korea  
<sup>7</sup>Department of Radiology, Severance Hospital, Korea



## Thyroid

11:20-12:00

GBR 103

### Chairpersons:

**Jeong Hyun Lee** Asan Medical Center, Korea

**Dong Wook Kim** Inje University Pusan Paik Hospital, Korea

SS 3 THY-1 11:20

**A Study on Serum Antithyroglobulin Antibodies Interference in Thyroglobulin Measurement in Fine-needle Aspiration in Diagnosing Lymph Node Metastasis in Postoperative Patients** 223

Hyun Joo Shin<sup>1</sup>, Hye Sun Lee<sup>2</sup>, Eun-Kyung Kim<sup>1</sup>, Hee Jung Moon<sup>1</sup>, Jin Young Kwak<sup>1</sup>

<sup>1</sup>Department of Radiology, Severance Hospital, Korea

<sup>2</sup>Biostatistics Collaboration Unit, Medical Research Center, Severance Hospital, Korea

SS 3 THY-2 11:30

**Known Clinical Risk Factors of Thyroid Cancer: Are They Still Useful in Euthyroid Asymptomatic Patients with Thyroid Nodules?** 224

Shinhye Hwang, Eun-Kyung Kim, Hee Jung Moon, Jung Hyun Yoon, Jin Young Kwak

Department of Radiology, Severance Hospital, Korea

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Jung Hyun Yoon, Eun-Kyung Kim, Hee Jung Moon, Jin Young Kwak

Department of Radiology, Severance Hospital, Korea

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<sup>1</sup>Department of Radiology, Asan Medical Center, Korea

<sup>2</sup>Department of Radiology, Ajou University Medical Center, Korea

<sup>3</sup>Department of Radiology, Daerim St. Mary's Hospital, Korea

<sup>4</sup>Department of Pathology, Daerim St. Mary's Hospital, Korea

## Breast

13:20-14:20

GBR 101

### Chairpersons:

**Eun Young Ko** Samsung Medical Center, Korea

**Kyu Ran Cho** Korea University Anam Hospital, Korea

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Ga Eun Park, Sung Hun Kim, Bong Joo Kang, Eun Jeong Kim

Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea

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Hee Jung Moon<sup>2</sup>, Min Jung Kim<sup>2</sup>, Eun-Kyung Kim<sup>2</sup>

<sup>1</sup>Department of Radiology, Kangbuk Samsung Medical Center, Korea

<sup>2</sup>Department of Radiology, Severance Hospital, Korea

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Se Jin Nam, Eun-Kyoung Kim, Min Jung Kim, Hee Jung Moon, Jung Hyun Yoon

Department of Radiology, Severance Hospital, Korea

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E-Ryung Choi, Boo-Kyung Han, Eun Sook Ko, Ji Soo Choi, Eun Young Ko

Department of Radiology, Samsung Medical Center, Korea

SS 4 BR-5 14:00

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Eun Young Ko<sup>1</sup>, Boo-Kyung Han<sup>1</sup>, Ji Soo Choi<sup>1</sup>,

Kiwan Choi<sup>2</sup>, Hyoung-Ki Lee<sup>2</sup>, Jae Moon Jo<sup>2</sup>

<sup>1</sup>Department of Radiology, Samsung Medical Center, Korea

<sup>2</sup>Samsung Electronics, Korea

SS 4 BR-6 14:10

**Diagnostic Performance of Shear Wave Elastography in the Diagnosis of Breast Non-mass Lesions: Comparison with Doppler Ultrasonography** 228

Ji Soo Choi, Boo-Kyung Han, Eun Sook Ko,

Eun Young Ko, Soo Yeon Hahn

Department of Radiology, Samsung Medical Center, Korea

## Musculoskeletal

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GBR 101

### Chairpersons:

**Sang Yong Lee** Chonbuk National University Hospital, Korea

**Jeong Ah Ryu** Hanyang University Guri Hospital, Korea

SS 4 MSK-1 14:20

**The Role of Ultrasonography and Magnetic Resonance Imaging in Early Detection of Psoriatic Arthritis: Comparison with Radiographic and Clinical Findings** 229

Mohammed Amin<sup>1</sup>, Abdou Allaban<sup>2</sup>,

Gehan Omar<sup>1</sup>

<sup>1</sup>Department of Rehabilitation Medicine, ElMinya University Hospital, Egypt

<sup>2</sup>Department of Rehabilitation Medicine, Minya University Hospital, Egypt

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**Catching it Early: Utilizing High-resolution Duplex Ultrasound with Power Doppler Imaging of Small Joints of Hands for Prognostication of Rheumatoid Arthritis Patients Undergoing Medical Management** 230

Siddharth Thaker, Nandini Bahri, Jasmin Ajudia

Department of Radiology, Guru Gobind Singh Hospital, India

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Gi-Young Park, Dong Rak Kwon, Hee Kyung Cho

Department of Rehabilitation Medicine, Daegu Catholic University Medical Center, Korea



## Thyroid

15:20-16:50

GBR 103

### Chairpersons:

**Dong Gyu Na** Human Medical Imaging & Intervention Center, Korea

**Jin Young Kwak** Severance Hospital, Korea

### SS 5 THY-1 15:20

#### Diagnostic Performances of TIRADS in Assessing of a Thyroid Nodule on Ultrasound According to Physicians Experience 231

Su Yeon Ko<sup>1</sup>, Eun-Kyung Kim<sup>2</sup>, Jin Young Kwak<sup>2</sup>
<sup>1</sup>Department of Radiology, Jeju National University Hospital, Korea

<sup>2</sup>Department of Radiology, Severance Hospital, Korea

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Department of Radiology, Severance Hospital, Korea

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Ji Won Yoon<sup>4</sup>, Kyung Won Kim<sup>4</sup>
<sup>1</sup>Department of Radiology, Gangnam Center, Seoul National University Hospital Healthcare System, Korea

<sup>2</sup>Department of Radiology, Human Medical Imaging and Intervention Center, Korea

<sup>3</sup>Department of Radiology, Seoul National University Hospital, Korea

<sup>4</sup>Department of Internal Medicine-Endocrine, Gangnam Center, Seoul National University Hospital Healthcare System, Korea

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Hye Shin Ahn, Soo Jin Kim, Sung Hee Park, Mirinae Seo,

Chang Un Lee

Department of Radiology, Chung-ang University Hospital, Korea

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Jieun Koh<sup>1</sup>, Hee Jung Moon<sup>1</sup>, Jeong Seon Park<sup>2</sup>,

Soo Jin Kim<sup>3</sup>, Eun-Kyung Kim<sup>1</sup>, Jin Young Kwak<sup>1</sup>
<sup>1</sup>Department of Radiology, Severance Hospital, Korea

<sup>2</sup>Department of Radiology, Hanyang University Medical Center, Korea

<sup>3</sup>Department of Radiology, Chung-ang University Hospital, Korea

### SS 5 THY-6 16:10

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Hyobin Seo<sup>4</sup>, Ji-hoon Kim<sup>5</sup>, Yeokyu Yoon<sup>6</sup>
<sup>1</sup>Department of Radiology, Human Medical Imaging & Intervention Center, Korea

<sup>2</sup>Department of Pathology, Seoul National University Hospital, Korea

<sup>3</sup>Department of Pathology, Ewha Clinical Laboratory, Korea

<sup>4</sup>Department of Radiology, Healthcare Research Institute, Seoul National University Hospital Healthcare System Gangnam Center, Korea

<sup>5</sup>Department of Radiology, Seoul National University Hospital, Korea

<sup>6</sup>Department of Surgery, Seoul National University Hospital, Korea

### SS 5 THY-7 16:20

#### Comparison of Pain, Tolerability and Complications for Biopsy of Thyroid Nodules: Fine Needle Aspiration Versus Core Needle Biopsy 234

Eun Ji Jeong, Jung Hwan Baek, Jeong Hyun Lee,

Young Jun Choi

Department of Radiology, Asan Medical Center, Korea

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Jeong Hyun Lee<sup>1</sup>, Young Kee Shong<sup>3</sup>,

Won Bae Kim<sup>3</sup>, Tae Yong Kim<sup>3</sup>
<sup>1</sup>Department of Radiology, Asan Medical Center, Korea

<sup>2</sup>Department of Radiology, Ajou University Medical Center, Korea

<sup>3</sup>Department of Internal Medicine, Asan Medical Center, Korea

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Junhee Pyo<sup>3</sup>, Kyung Won Kim<sup>2</sup>, Seung Hee Baek<sup>4</sup>
<sup>1</sup>Department of Radiology, Ajou University Medical Center, Korea

<sup>2</sup>Department of Radiology, Asan Medical Center, Korea

<sup>3</sup>Center for Evaluation of Value and Risk in Health, Institute of Clinical Research and Health Policy, Tufts Medical Center, USA

<sup>4</sup>Departments of Clinical Epidemiology and Biostatistics, Asan Medical Center, Korea

## Scientific Exhibits

### Abdomen

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*Department of Radiology, Chulabhorn Hospital, Thailand*

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<sup>1</sup>*Department of Radiology, Ospedale Valduce Como, Italy*  
<sup>2</sup>*Department of Radiology, Ospedale Evangelico Internazionale Genova, Italy*  
<sup>3</sup>*Department of Internal Medicine, Policlinico Vittorio Emanuele Catania, Italy*  
<sup>4</sup>*Department of Radiology, IRCCS Multimedica SS.Giovanni, Italy*

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<sup>1</sup>*Department of Radiology, Health Sciences University of Mongolia, Mongolia*  
<sup>2</sup>*Department of Radiology, State Third Central Hospital, Mongolia*  
<sup>3</sup>*Department of Radiology, State Second General Hospital, Mongolia*

#### SE 004

**Accuracy of Ultrasound in Diagnosis of Groin Hernia** 238  
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*Department of Radiology, Prince of Wales Hospital, Hong Kong*

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**The Role of Ultrasonography in the Diagnosis of Acute Phase of Chronic Pancreatitis** 239  
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<sup>1</sup>*Department of Radiology, Health Sciences University of Mongolia, Mongolia*  
<sup>2</sup>*Department of Radiology, State Third Central Hospital, Mongolia*

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<sup>1</sup>*Department of Biomedical Imaging and Radiological Sciences, School of Biomedical Science and Engineering, National Yang-Ming University, Taipei, Taiwan*  
<sup>2</sup>*Faculty of Public Health, College of Medicine, Fu-Jen Catholic University, Taipei, Taiwan*

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*Department of Nuclear Medicine, 1. National Institute of Nuclear Medicine and Allied Sciences, BAEC, Bangladesh*

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<sup>1</sup>*Department of Radiology, Health Sciences University of Mongolia, Mongolia*  
<sup>2</sup>*Department of Radiology, 3rd Central Clinical Hospital of Mongolia, Mongolia*

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**Computer-aided Classification of Liver Tumors in 3D Ultrasound Images with Combined Active Contour Model Segmentation and Support Vector Machine** 241  
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*Department of Radiology, Seoul National University Hospital, Korea*

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*Department of Radiology, Myongji Hospital, Korea*

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*Department of Radiology, Kyung Hee University Medical Center, Korea*

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*Department of Radiology, Samsung Medical Center, Korea*

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<sup>1</sup>*Department of Radiology, Chung-ang University Hospital, Korea*  
<sup>2</sup>*Department of Radiology, Samsung Medical Center, Korea*

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<sup>1</sup>*Department of Radiology, The Catholic University of Korea, Seoul St. Mary's Hospital, Korea*  
<sup>2</sup>*Department of Radiology, University of California, Irvine, USA*  
<sup>3</sup>*Department of Radiology, University of Washington, USA*  
<sup>4</sup>*Department of Radiology, University of Cincinnati, USA*  
<sup>5</sup>*Department of Surgery-Hepatobiliary, University of California, Irvine, USA*

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<sup>1</sup>Department of Radiology, Kyung Hee University Medical Center, Korea

<sup>2</sup>Department of Radiology, Kyung Hee University Hospital at Gangdong, Korea

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Department of Radiology, Chungnam National University Hospital, Korea

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Department of Radiology, Wonkwang University Hospital, Korea

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Department of Internal Medicine, Private Practice, Indonesia

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Department of Radiology, Medic Medical Center, Vietnam

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Department of Radiology, Soonchunhyang University Bucheon Hospital, Korea

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Sujin Ko, Seong Sook Hong, Ji Young Hwang, Hyun Ju Kim, Jung Hwa Hwang

Department of Radiology, Soonchunhyang University Hospital, Korea

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Jewon Jeong, Seong Sook Hong, Ji Young Hwang, Hyun Ju Kim, Jung Hwa Hwang

Department of Radiology, Soonchunhyang University Hospital, Korea

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Borahm Lee<sup>1</sup>, Jeongeun Lee<sup>1</sup>, Junsik Jo<sup>1</sup>,

Kyungsuk Sin<sup>1</sup>, Insang Song<sup>2</sup>, Kyunghee Kim<sup>3</sup>

<sup>1</sup>Department of Radiology, Chungnam National University Hospital, Korea

<sup>2</sup>Department of Surgery, Chungnam National University Hospital, Korea

<sup>3</sup>Department of Pathology, Chungnam National University Hospital, Korea

## Breast

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Yi-Hong Chou<sup>1</sup>, Hsiao-Chuan Liu<sup>1</sup>, Chui-Mei Tiu<sup>1</sup>, Hong-Jen Chiou<sup>1</sup>, Hsin-Kai Wang<sup>1</sup>, Yi-Chen Lai<sup>1</sup>, Chih-Yi Hsu<sup>1</sup>, Ling-Ming Tseng<sup>2</sup>

<sup>1</sup>Department of Radiology, Taipei Veterans General Hospital, Taiwan

<sup>2</sup>Department of Surgery, Taipei Veterans General Hospital, Taiwan

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Nergui Bayanzul<sup>1</sup>, Tuvshinjargal Dashjamts<sup>2</sup>, Orkhon Gombosuren<sup>1</sup>, Bolorsaikhan Baatar<sup>1</sup>,

Ariunbolor Odkhuu<sup>1</sup>, Tuya Gansukh<sup>1</sup>,

Darkhijav Yanjiv<sup>1</sup>, Tugsjargal Purevsukh<sup>2</sup>

<sup>1</sup>Department of Radiology, UB Songdo Hospital, Mongolia

<sup>2</sup>Department of Radiology, Health Science University of Mongolia, Mongolia

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Meihua Zhang<sup>1</sup>, Hoe Suk Kim<sup>1</sup>, Yujin Sun<sup>1</sup>, Ann Yi<sup>2</sup>,

Woo Kyung Moon<sup>1</sup>

<sup>1</sup>Department of Radiology, Seoul National University Hospital, Korea

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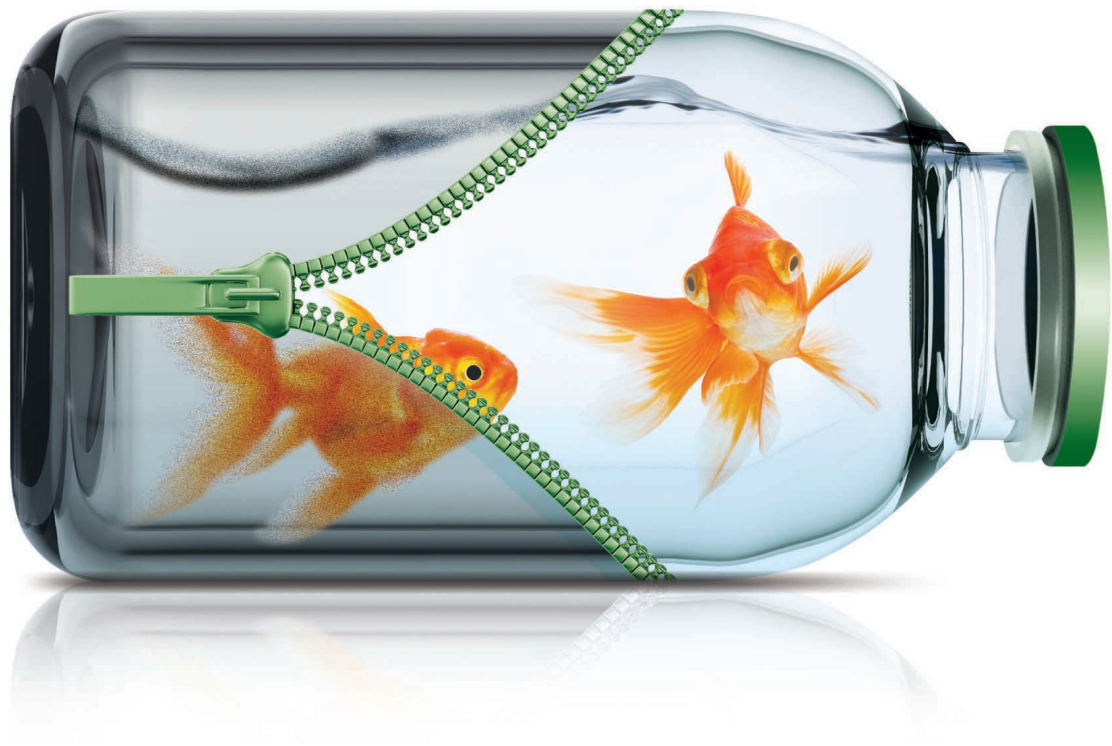
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Halavaara J. et al, Comput Assist Tomogr 2006; 30:345 – 354.  
Hammerstingl R. et al., Eur Radiol 2008; 18:457 – 467.

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