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**ASUM2018  
AUCKLAND**

10 – 12 AUGUST 2018  
SKYCITY AUCKLAND  
CONVENTION CENTRE  
AUCKLAND, NEW ZEALAND  
[asumconference.com.au](http://asumconference.com.au)



# ECHOES

WORLD FEDERATION FOR ULTRASOUND IN MEDICINE AND BIOLOGY

**WFUMB Vision Statement:**  
Through communication, collaboration  
and education, bring sustainable  
ultrasound programs to underserved  
areas in the world.

ISSUE 19

JUNE 2018 EDITION



Susan Westerway, Christian Nolsoe (President), Seung Hyup Kim (President Elect) and other Executive Bureau members at the WFUMB-AFSUMB Education Forum which took place during AFSUMB2018.

## Welcome to ECHOES – the newsletter of the World Federation for Ultrasound in Medicine

**As the number of users of medical ultrasound expands further around the world it highlights the significance of the WFUMB slogan “Ultrasound 4 All”.**

In this edition of ECHOES we report on some of the teaching activities that WFUMB has instigated. This work would not be possible without the continued support of our many volunteers and education & trade partners who freely give their time to bring ultrasound education to all regions of the world.

We would also like to introduce to our readers a new segment on interviews with the ultrasound luminaries who have helped forge our profession into what it is today.

The first interview is with the Australian scientist and former WFUMB president George Kossoff.

As well as the reports from the member federations there is a listing of upcoming conferences and education offerings. I encourage you all to regularly visit the new look WFUMB website to read about the past, the present and the future of your federation.

*Susan Westerway PhD  
Chair WFUMB Communications*





## AFSUMB 2018, Beyond Asia, to the world with ultrasound

Seung Hyrup KIM, WFUMB President Elect

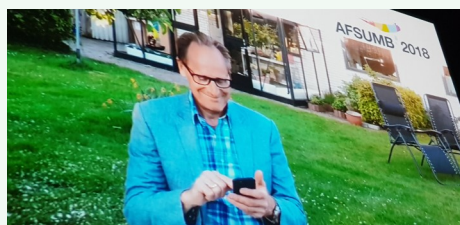
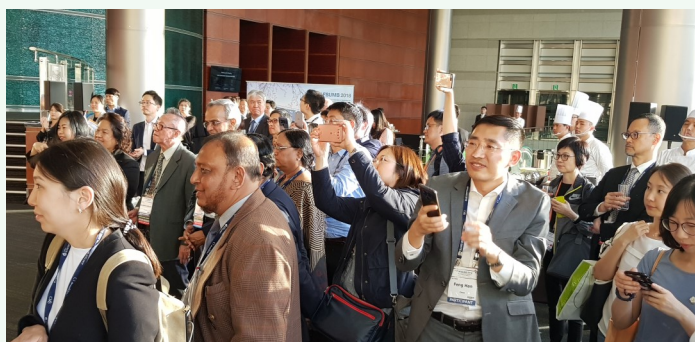
AFSUMB 2018 was held on 23~26 May 2018 in Seoul with a slogan “**Beyond Asia, to the world with ultrasound**”.

AFSUMB 2018 Congress was held in conjunction with ACUCI 2018 and KSUM 2018.

The scientific program was of high quality with 238 invited guests (speakers, chairs, and instructors) and 436 abstracts for scientific presentations. WFUMB President, Christian Nolsøe, was the WFUMB Lecturer for the congress.

There were two WFUMB-related sessions; WFUMB-AFSUMB Ultrasound History Forum and WFUMB-AFSUMB Education Forum. Christian Nolsøe, Seung Kim, Byung Choi, Yi-Hong Chou, Dieter Nürnberg, and Sue Westerway participated to those sessions as speakers or chairs. WFUMB COE business meeting was also held.

**The congress was well attended with a total of 1,795 participants from 44 countries.**



For more AFSUMB 2018 photos, please visit the WFUMB Website at [www.wfumb.org](http://www.wfumb.org)



# The First Course in Ultrasound in the Ivory Coast

Supported by MASU and WFUMB, including the formation of the Ivorian Society of Ultrasound

*Prof. Hassen Gharbi and Dr. Caroline Ewertsen*



The first post-graduate course in ultrasound in the Ivory Coast was held in Abidjan from February 22-24, 2018 and included the inauguration of the Ivorian Society of Ultrasound (SIVUS). The course was established in collaboration between WFUMB, MASU and SIVUS.

Preparations had been going on for about a year especially between professor Gharbi (WFUMB and MASU) and president of the Ivorian Society of Ultrasound, N'goran Kouamé. The program included initially four speakers from WFUMB, but due to unforeseen circumstances only two were able to attend, professor Gharbi and Dr. Ewertsen. The program covered a wide variety of ultrasound applications – MSK, abdominal, pediatric, obstetrics, cardiology and breast – and lectures were given by local, regional and the WFUMB lecturers. The Regional speakers included Dr. Sokhna Bah (Senegal), Dr. Sonhaye Latam (Togo) and Dr. Nikiema Zakara (Burkina Faso). All lectures were given in French.



*"There seems to be a great potential for ultrasound in the region and a great interest from the doctors and other medical personnel."*

*In total 123 participants were registered (80 radiologists, 3 midwives, 20 gynecologists, 7 cardiologists and 13 technicians and engineers), mainly from the Ivory Coast.*

All were very eager to learn and every session was followed by a discussion between speakers and participants. The level was generally high, and it was great to see the enthusiasm from the participants.



The course was held in Hotel la Rose Blanche, which also hosted the technical exhibition with GE, Samsung, Chison and Toshiba systems. These companies also helped with equipment for the hands-on sessions in the afternoons, where participants scanned healthy volunteers.

We kindly wish to thank the companies sponsoring the course – without their help the course would probably not have been realized.

During the course, the Ivorian Society of Ultrasound was established with participation from people from the local university (Université Félix Houphouët Boigny), and from the organization CIFRAF, responsible for the education of radiologists in the French speaking part of Africa (Centre International de Formation des Radiologistes de l'Afrique Francophone). During the inauguration lecture professor Gharbi offered the books "Manual of Diagnostic in Ultrasound, vol. 1 and 2" on behalf of WFUMB to the new society represented by Dr. N'goran Kouamé.

Hopefully, future courses will follow in the region, for instance in Burkina Faso or Senegal. A CoE is already established in Lomé (Togo), and Dr. Sonhaye Latam was invited as lecturer and represented this society. There seems to be a great potential for ultrasound in the region and a great interest from the doctors and other medical personnel.

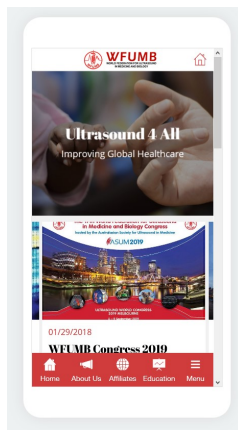
*We kindly wish to thank all the participants, the local and international course organizers and the sponsors.*



# The new [www.wfumb.org](http://www.wfumb.org)

## A Progressive Website & App taking our Federation into a new digital era

*Suzanne Cain, WFUMB Web Administrator*

A poster for the Tunisian Society of Ultrasound Congress. It features logos for STED, WFUMB, and the Tunisian Society of Ultrasound. The text reads: 'LA SOCIÉTÉ TUNISIENNE D'ÉCHOGRAPHIE ET DE DOPPLER organise son 4ème CONGRÈS INTERNATIONAL AUTOUR DE L'ÉCHOGRAPHIE'. The dates are '5 ET 6 OCTOBRE 2018' in 'TUNIS'. Topics listed include: Intelligence artificielle, Dépistage prénatal-Préclampsie, Anesthésie loco-régionale échoguidée, Infertilité, Échocardiographie, Échographie vasculaire, and Communications libres. There are also 'Ateliers sur machines'. Contact information is provided at the bottom: 'Informations et programme sur : [www.sted-tn.com](http://www.sted-tn.com) / [contact@sted-tn.com](mailto:contact@sted-tn.com)'.

TUNISIAN SOCIETY OF ULTRASOUND CONGRESS

5 — 6 October 2018

TUNIS

Visit: <http://www.sted-tn.com/>

The updated WFUMB website /App (PWA) is now live on the [www.wfumb.org](http://www.wfumb.org) domain name. The Site/App was launched last week and is currently going through tests to be released for download on Apple iStore and GooglePlay shortly. But you don't have to wait as the App can be already be loaded by visiting [www.wfumb.org](http://www.wfumb.org) on your mobile device and clicking on the 'Add to Home Screen' on your phone menu. This will add the WFUMB App to your own mobile device with an App icon for instant access on the move. The new site is an excellent starting point for greater developments over the coming months.

With plans for cases and more ultrasound images, up-to-date ultrasound news, COE Courses, interviews and content from right across the world.

WFUMB site is only as great as its contributions and its important that it stays current in its coding and development but more importantly in its content.

We need to make sure the site is showing all the information we as a group need, but most importantly, information people will be looking for when searching for WFUMB.

We plan to publish more tech-friendly content as well as the usual images, photographs, text and reports including:

- ~ Videos hosted on our own WFUMB Channel
- ~ Podcasts
- ~ E-books and publications
- ~ Live Broadcasts from key events
- ~ Webinar broadcasts with key speakers

In addition to all of the above we are starting a worldwide Ultrasound Calendar of events—a one stop information rich calendar so you can plan your entire year.

### Help make the WFUMB site great!

Do you have interesting cases, publications or reports? Are you taking part in an upcoming ultrasound event? Are you interested in contributing to our site on a regular basis? or maybe, you have an idea for other types of content you think the WFUMB site needs ...

Get in touch ... [WFUMB@kosmos-design.co.uk](mailto:WFUMB@kosmos-design.co.uk)

A banner for a live broadcast webinar. It features a dark background with the text 'live broadcast' in a stylized font, followed by 'Joint WFUMB-EFSUMB' and 'WEBINAR' in large, bold, white letters. On the left, it says '13 SEPTEMBER 2018' and '15.00 CEST'. On the right, it says 'GIUS Ultrasound' and 'REGISTRATION COMING SOON'.

The first joint WFUMB-EFSUMB Webinar is now planned for 13th September 2018 at 15.00 CEST and is on the topic of

### GIUS Ultrasound

Chaired by Prof. Odd Helge Gilja with Presenters: Kim Nylund (Bergen), Stephanie Wilson (Calgary), Giovanni Maconi (Milan) & Carla Serra (Bologna)

REGISTRATION LINK TO FOLLOW on the WFUMB ([www.wfumb.org](http://www.wfumb.org)) and EFSUMB ([www.efsumb.org](http://www.efsumb.org)) websites





## FEDERATION REPORTS: EFSUMB Update

Prof Paul Sidhu's first year as EFSUMB President has seen the Publication of the CEUS non-liver Guidelines Update 2017 and Parts 1 and 2 of the Gastrointestinal Ultrasound (GIUS) Guidelines with Parts 3 -7 to follow shortly. The Elastography non-liver guidelines have been completed and will be submitted to the EFSUMB journal, UIM/EJU for publication in early 2018. We are using a guidelines voting platform to assist these publications.

EFSUMB webinars are now a feature in the calendar covering not just CEUS. It is hoped to cover more topics, including GIUS, Elastography and Endoscopic Ultrasound. The webinar archive is proving popular although the Case of the Month remains the most visited area of the EFSUMB website. We invite submissions from other federations of interesting cases with images.

The next EFSUMB Congress will take place in Poznan, Poland 6-9 September –please visit the website to view the programme:

[www.euroson2018poznan.pl/en/](http://www.euroson2018poznan.pl/en/)

In 2019, the Euroson congress will take place in Grenada, Spain 29th of May to 1st of June. In 2020 the Euroson congress will be arranged 11-13 June in Bergen, Norway. You are most welcome to attend the Euroson congresses even if you belong to other federations.

The role of education is important in EFSUMB with Euroson Schools, CEUS Schools and Endorsed Courses and Ultrasound Learning Centres available throughout the year.

The EFSUMB Course Book (ECB) is now available on the new EFSUMB ultrasound app and each 2nd Edition chapter can be downloaded



EFSUMB is working closely with other European organisations – ESR, EASL and UEG - to bring ultrasound sessions and learning areas to these large meetings. Please visit the EFSUMB website for the latest in ultrasound news  
[www.efsumb.org](http://www.efsumb.org)

Bergen, May 2018,

Odd Helge Gilja

EFSUMB Past-President 2017-2019, Chairman WFUMB Education Committee  
WFUMB Administrative Councilor

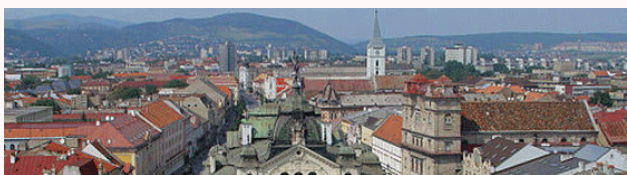
## UPCOMING EUROSON SCHOOLS



### Musculoskeletal Sonography Course for Rheumatologists ~ Intermediate Level

#### EUROSON SCHOOL

Innsbruck, Austria 5 - 7 September 2018



### Chest Ultrasound

#### EUROSON SCHOOL

Košice, Slovakia 20-22 September 2018



### Musculoskeletal Sonography Course in Rheumatology ~ Advanced Level

#### EUROSON SCHOOL

Graz, Austria 7 - 9 November 2018



### Liver Elastography

#### EUROSON SCHOOL

Timisoara, Romania 23 - 24 November 2018



## FEDERATION REPORTS: FLAUS Update

As social networks become global and ease of travel to far-flung destinations grows easier, the world seems to grow ever smaller.

The Latin American Federation of Societies for Ultrasound in Medicine and Biology, as an ultrasonography reference in Latin America and as an integrator of the countries members, is pleased to announce that in 2018 we are offering the following events in the members societies and affiliated entities:



### 48th São Paulo Radiological Meeting (JPR 2018)



May 3-6, 2018

Trasamerica Expo Center - São Paulo, Brazil.

<http://www.jpr2018.org.br>

### Actualización de US en tejidos blandos y ECO-FAST



June 2-4, 2018

Ecocaribe Centro Médico – Barranquilla, Colombia.

<http://tienda.acomesf.org>

### X Simposio de la Sociedad Dominicana de Sonografía y 1er Simposio de Ecografía pediátrica



June 16-17, 2018

Hotel Catalonia – Santo Domingo, Republica Dominicana.

<http://www.flaus-us.org>

### I Congreso Internacional de Ultrasonido



June 28 – 30, 2018

Mont's Hotel – Huehuetenango, Guatemala.

[https://www.facebook.com/ASOGU-Asociacion-](https://www.facebook.com/ASOGU-Asociacion-Guatemalaca-de-Ultrasonido-)

[Guatemala-ca-de-Ultrasonido-](https://www.facebook.com/ASOGU-Asociacion-Guatemalaca-de-Ultrasonido-)

### Congreso Internacional de Ultrasonido en Medicina



July 18-19, 2018

Hotel Crowne Plaza El Salvador – El Salvador.

<http://www.flaus-us.org>

### Congreso Nacional e Internacional de US y Congreso EuroAmericano de Medicina Fetal



July 25-28, 2018

Hotel Real de Minas - Querétaro, México.

<http://fmacu.com/>

### I Congreso Internacional de US MSK y lesiones deportivas



August 3-5, 2018

Hilton Miraflores - Lima, Perú.

<http://www.spumb.pe>

### XLVII Congresso Brasileiro de Radiologia – CBR18



October 11-13, 2018

Windsor Convention & Expo Center - Rio

<http://congressocbr.com.br>

### Congreso de la Asociación Boliviana de Ultrasonido



November 1-3, 2018

*It seems all signs point to now being the perfect time to plan a trip to the region. See you!*

Ana Chavarría, MD.



## FEDERATION REPORTS: AIUM 2018 Meeting in New York

On Tuesday 3/27/18 morning we had multiple activities related to US in Global Health:

Advances in Ultrasound in Global Health Session 8:30-10:00 am (3 presentations) - click on the links to view ...

- Michael Schick- Ultrasound Education and Its Implications for Global Healthcare Delivery - [View presentation](#) @UltrasoundStuff SonoStuff.com



ECHOES  
WORLD FEDERATION FOR ULTRASOUND IN MEDICINE AND BIOLOGY





## The 17th World Federation for Ultrasound in Medicine and Biology Congress

hosted by the Australasian Society for Ultrasound in Medicine

**ASUM2019** 6 – 9 September 2019  
Melbourne Convention & Exhibition Centre Melbourne, Australia



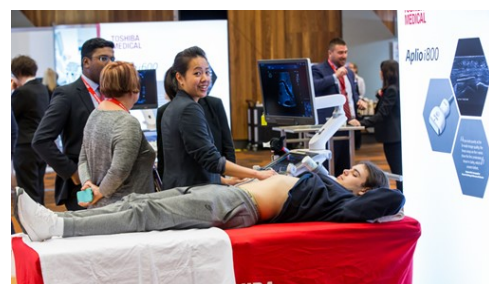
# WFUMB2019 hosted by ASUM in Melbourne

The Australasian Society for Ultrasound in Medicine (ASUM) is a multidisciplinary society whose mission is to advance the clinical practice of diagnostic medical ultrasound for the highest standards of patient care. We have the honour of bringing this mission to the global community as we host WFUMB2019 in Melbourne.

The amazing scientific committee, made up of medical and sonographer specialists, are hard at work putting together a fantastic program to stimulate, inspire and challenge your learning and current practice in many areas of ultrasound including;

- Cardiac
- Critical care
- Emergency medicine
- General Practitioner
- Gynaecology
- Hepatology
- Midwifery
- MSK
- Neonatology
- Nursing
- Obstetrics
- Physics
- Physiotherapy
- Radiology
- Respiratory
- Rheumatology
- Scientific
- Sonography
- Sports medicine
- Surgical
- Therapeutic
- Urology
- Vascular

The trade exhibition offers delegates the opportunity to engage with key industry suppliers and gain the latest information about their offerings, be it education, employment, systems and technology. We encourage you to visit our sponsors and thank them for their support. For all our sponsors and exhibitors, if you haven't received your prospectus for WFUMB2019, please contact us on [asum@asum.com.au](mailto:asum@asum.com.au)



All work and no play? Never! A little fun is actively encouraged as ASUM hosts a number of fantastic social events as part of the program.

This is a great chance to network, meet with old friends, make new connections and enjoy a little downtime. *You can be part of this too!*

**Abstracts open 3 September 2018**

**Registrations open 3 December 2018**

**See you there!**



# Report on the visit to INCAN 6th February 2018

**Sue Westerway**



In February the WFUMB councillors visited the el Instituto de Cancerlogia Hospital in Guatemala City. Guatemala has a population of over 15 million and the INCAN is the only public operated cancer hospital in the country. As such, it sees over 25,000 patients per year and is the only public hospital equipped to provide oncology treatment.

INCAN was founded in the 1950's and built with the support of Liga Nacional Contra el Cancer and Rotary. The most prevalent cancer seen at the hospital is stomach and gastro-intestinal, whilst in women there is a very high incidence of cervical cancer.

A planned ultrasound course to coincide with our council meeting was unexpectedly cancelled a few weeks before our visit and so only a tour of the hospital took place. WFUMB Councillors were welcomed by a delegation of hospital officials and visiting fellows before being taken to see the imaging facilities. The ultrasound department consisted of two machines that were over 15 years old but both still gave reasonable images. The very capable nursing and radiography staff have been trained to assist with scanning the heavy workload.

Later that day the INCAN directors and members of the Guatemalan Ultrasound Society joined the WFUMB delegation to discuss future collaborations for courses that could assist with ultrasound education in the country.



*INCAN has one old US unit, a Philips Envisor. They are in great need of a new US unit. RAD-AID's mission is to improve INCAN's Radiology department and WFUMB's mission is to help bring a sustainable ultrasound program. Working together, WFUMB and RAD-AID hope to achieve both missions.*

[Read a full report on this from Harvey Nisenbaum >>](#)





# WFUMB COE Progress and Future Plans

WFUMB CoE meetings	Date	Topics	Organiser	Venue
<b>2018</b>				
Khartoum, Sudan	8 - 12 January	US in Gastroenterology and Surgery, Endoscopic US	Dr. Suzan Elhakim	Corinth-Hotel Khartoum
Dhaka, Bangladesh	2-3 March	20th Workshop	Prof Kanu Bala	
Jakarta, Indonesia	23-24 March	EUS	Dr Daniel Makes	Harris Hotel Jakarta
Nairobi, Kenya	March		Prof Sudhir Vinayak	
Brasov, Romania	17-18 May	Postgraduate Course of WFUMB COE Timisoara - What's new	Prof. Ioan Sporea	Brasov
Nairobi, Kenya	June		Prof Sudhir Vinayak	
Chisinau, Moldova	15-16 June	US Sommer School	Dr. Sergiu Puius	Chisinau
Timisoara, Romania	29-30 June	Ultrasound Course for Fellows in Gastroenterology	Prof. Ioan Sporea, Prof.	Timisoara, Romania
Ulaanbaatar, Mongolia	25-26 July	6th WFUMB CoE Workshop	Prof Sonin Sodov	Ulaanbaatar, Mongolia
Ulaanbaatar, Mongolia	25-26 July	"Mongolian Mindray Ultrasound Forum" 27 -28 July 2018	Dr. Enkhbayar Dondog,	Ulaanbaatar, Mongolia
Caracas, Venezuela	September	Internal medicine	L Fernandez	
Nairobi, Kenya	October	Annual conference - Breast	Prof Sudhir Vinayak	
Chisinau, Moldova	26-27 October	COE Meeting GIUS	Dr. Sergiu Puius	Chisinau
Arba Minch, Ethiopia	12-16 November	COE Course	Amir Sultan	
Timisoara, Romania	22-Nov	EFSUMB Endorsed Course- Contrast Enhanced Ultrasound	Prof. Ioan Sporea	Timisoara, Romania
Timisoara, Romania	23-24 Nov	EUROSON SCHOOL Course -Liver Elastography	Prof. Ioan Sporea	Timisoara, Romania
Timisoara, Romania	Nov	ABC in Ultrasound - course for students	Alina Popescu	Timisoara, Romania
Nairobi, Kenya	December		Prof Sudhir Vinayak	
<b>2019</b>				
Khartoum, Sudan	January	US & EUS Workshops in conjunction with GE Conference	Dr. Suzan Elhakim	Corinth-Hotel Khartoum
Dhaka, Bangladesh	1-2 March	21st Workshop	Prof Kanu Bala	
Timisoara, Romania	april	ABC in Ultrasound - course for students	Roxana Sirii	Timisoara, Romania
Timisoara, Romania	24-25 May	WFUMB COE Timisoara Annual Workshop - US in Emergencies, in conjunction with SRUMB National Conference	Prof. Ioan Sporea	Tg. Mures, Romania
Timisoara, Romania	June	Ultrasound Course for Fellows in Gastroenterology	Prof. Ioan Sporea, Prof.	Cluj Napoca, Romania
Ulaanbaatar, Mongolia	25-26 July	10. Anniversary WFUMB CoE	Dr. Enkbar Dondog	
Kampala, Uganda	october	Kampala WFUMB COE event	Prof. Michael Kawooya	
Timisoara, Romania	14-15 Nov	Euroson School - CEUS non liver applications	Prof. Ioan Sporea	Timisoara, Romania
Timisoara, Romania	15-16 Nov	EUROSON SCHOOL Course -Liver Elastography	Prof. Ioan Sporea	Timisoara, Romania
Timisoara, Romania	Nov	ABC in Ultrasound - course for students	Alina Popescu	Timisoara, Romania
Timisoara, Romania		Workshop in cooperation with WFUMB COE Chisinau	Prof. Ioan Sporea	Chisinau, Moldova
<b>no plan 2018</b>				
Kampala, Uganda		postponed !		
Lome, Togo		awaited		
Lagos, Nigeria		awaited		
Caaguazu, Paraguay		awaited		
<b>additional WFUMB supported Meetings</b>				
Abidjan, Ivory Coast	22-24 February	Abdomen, Paediatric, Obstetrics, Cardio-vascular, Interventional	Pr KOUAME N'GORAN	
Fiji	27-29 September	WFUMB supported Course Abdominal US	A/Prof. Sue Westerway	
Tirana, Albania	14-16 December	WFUMB supported Course Abdominal US	Prof. Durim Celim	
<b>Regional COE Director Meeting</b>				
Seoul, South Korea	23-25 May	AFSUMB COE Meeting	Prof. Byung Choi	
Poznan, Poland	07-08 Sept	EFSUMB COE Meeting; Euroson 2018 in Poznan	Prof. Ioan Sporea	
Neapel, Italy	17-18 Nov	MASU COE Meeting	Prof Sudhir Vinayak	

30th Euroson Congress  
of the EFSUMB

14th Scientific Congress of Polish  
Ultrasound Society for Ultrasound  
in Medicine

6-9th September 2018, Poznań, Poland  
Poznań Congress Center



**EUROSON**  
6-9.09.2018, Poznań, Poland

Polskie  
Towarzystwo  
Ultrasonograficzne



## WFUMB Interviews with ultrasound luminaries:

# George Kossoff

ASUM President 1970-1972, WFUMB President 1982-1985

### *How and when did you become involved in ultrasound?*

I graduated from the University of Sydney in March 1959 with a Bachelor degree in Science in Physics and Mathematics and a First Class Honors degree in Electrical Engineering. At that time I considered applying for a position as research scientist in nuclear physics at the Atomic Energy Commission.

The day after the results were announced, Norman Murray, the Director of the Commonwealth Acoustic Laboratories, approached me and invited me to set up and head the to be formed Ultrasonics Research Section at the Laboratories. Murray had been keeping an eye on the emerging publications on medical ultrasound. He had attended a meeting of the NHMRC where concern was expressed regarding the use of X-rays in pregnancy and was aware of the first publication by Donald on the use of ultrasound to investigate abdominal masses. He felt that Australia should also begin to undertake research into this emerging field of medical ultrasound and that the Acoustic Laboratories were an appropriate venue for this research.

Norm Murray persuaded me to accept his invitation on the basis of his description of medical ultrasound as a field in the early stages development where it would be easier to make meaningful contributions. As there was no one in Australia with experience in ultrasound I was to report directly to him as a Section Head. In recognition of this responsibility my appointment would be at a grade higher than that normally offered to a raw graduate. In other words he made me an offer which I just could not refuse and I commenced duties at the Laboratories on 10th of March 1959.

At that time seven groups were undertaking research into medical ultrasound. In the United States, Wild and Reid in Minneapolis were

investigating imaging the breast, Howry and Holmes in Denver the abdomen, Baum in New York the eye, while Fry and his team in Champaign-Urbana were using high intensity ultrasound to create trackless lesions in the brain. In Europe, Donald in Glasgow was applying ultrasound to examine the pregnant uterus while Edler and Hertz in Malmö were studying the applications of M-mode to image the heart. Finally in Japan, Wagai in Tokyo was the second investigator to begin to image the breast. Our research into obstetrical applications commenced in September 1959 with the appointment of Bill Garrett as clinical consultant to the Section. We were thus the second group internationally to begin research into imaging in obstetrics.

### *Were there any particular people that influenced your work?*

I was very fortunate to have had capable colleagues who wanted to join our Section and to collaborate with all as an interdisciplinary team. There were no walls between researchers working on different projects nor from our medical consultants in different professions. Ideas were exchanged freely in weekly review meetings where our successes, obstacles or failures were presented and discussed. In this way we all contributed towards our common objective of advancing our knowledge and contributions to medical ultrasound.

I would however like to single out several individuals who made major contributions that influenced my work.

Internationally - I was very much impressed by the work of Doug Howry and Joe Holmes who, using the water coupling technique, published detailed images of the human neck and lower limb. This was the main reason as to why our Section, later to become the independent Ultrasonics Institute, chose this approach to examine the pregnant abdomen and the breast.

I also closely followed the research conducted by Bill Fry and his team who put together a team of scientists, engineers and medical doctors to produce trackless lesions in the human brain and used this method to study the interconnections between nuclei in the brain of the cat.

Australia - I was introduced to various aspects of clinical practice by Bill Garrett in obstetrics and by Tom Reeve in the breast. They were both excellent teachers and with time we developed a team approach to identify the structures in the human body that had not been previously imaged by ultrasound. The imaging of artifacts posed challenges but with time we learned how to identify those and even obtain useful clinical data from their portrayal. It was not uncommon for us to publish technical or clinically oriented papers depending on who was the senior person making the original observation and putting it into practice.

Dave Robinson joined the Section eighteen months after my appointment. We had mutual respect for each other abilities and developed a close working relationship. Dave was a practical man and was the person in charge of designing the electronic signal processing and mechanical requirements of our scanners. My contributions lay in the philosophical approaches as to how to handle the complex data acquired by the scanners and in the design and construction of the transducers used in our research.

In 1975 we developed the UI Octoson. In this scanner the patient lay essentially on a water bed and was examined from below by eight annular array transducers. Single and compound scans were obtained quickly and all the features of the scanner were controlled by a computer. Many radiologists and obstetricians expressed interest in acquiring this equipment.



The Australian Government went to tender to select the company to manufacture this scanner and the Nucleus Group was selected to do so. The Chairman of the Group was Paul Trainor, an Australian enterpreneur, who had set up several medical companies including Teletronics and Cochlear. Ausonics Pty Ltd was established to build the UI Octoson and I was asked to help Paul introduce the scanner to the market. This included many meetings with individuals and companies interested in the venture. Paul, a true gentleman, was an excellent negotiator and I learned a lot from him how markets work. The UI Octoson was manufactured in Sydney and over five years nearly two hundred of these scanners were sold world wide.

#### *What were your career highlights?*

Here is a chronological list of my career highlights:

1959 Joined the Commonwealth Acoustic Laboratories and began research into medical ultrasound.

1962 Obtained our first black and white obstetrical scans. The outline of the fetal head and trunk were clearly displayed as well as some internal fetal organs such as the spine, the heart and the bladder. This allowed us to make accurate assessment of fetal wellbeing from size measurements, diagnosis of asymmetrical growth retardation and of anomalies that cause bladder obstruction.

1963 Developed techniques to measure the acoustic output of therapeutic and diagnostic transducers. This allowed us to measure the output of different transducer designs and to select those that minimized patient exposure.

1965 With Bill Garrett as senior author published the first detailed paper on our ability to visualize the fetus and the clinical relevance of this information.

1967-1969 Two year sabbatical with Bill Fry. Bill was putting together a scanner which had lesion making as well as imaging capabilities. Bill at that time was President of the AIUM and he appointed me Vice President to help stage the AIUM 1968 Congress. AIUM Congresses had been focused mainly on physiotherapy applications and biological effects. I was interested in incorporating diagnostic imaging as a major component of the 1968 Congress. Unfortunately Bill died suddenly in 1968 and, as stipulated in the AIUM by-laws, I became President for the next year and a half. This Congress marked the transition of the AIUM from a physiotherapy

focused organization to one whose major interests are diagnostic applications.

#### 1969 Establishment of ASUM

Shortly before my return to Australia, I attended the First Congress of WFUMB held in Vienna. On my return I presented a summary of that Congress at an ad hoc meeting of the staff, our medical consultants and other individuals who had an interest in diagnostic ultrasound. At that meeting it was unanimously agreed that a society representing Australian interest should be formed and be named the Australian Society of Ultrasound in Medicine. I had the privilege of being elected Foundation President of the Society and served in that capacity for the next two years. The Society flourished and undertook action not only to promote scientific and clinical applications but also to concentrate on issues of education. One of my greatest satisfactions is to see ASUM flourish to the extent that it has achieved to date, and to see the use of ultrasound in Australia second to none.

1969 Development of Grey Scale Imaging During the last month of my stay in Illinois, I noted that when medium levels of power output were used to image the liver of the cat, the soft tissues reflected echoes of similar size irrespective of the direction of the scanning beam. I realized that the texture of soft tissue reflected the ultrasound energy in a diffuse manner. This was in stark contrast to the specular echoes obtained from large interfaces with which we were familiar. This led us to redesign transducers and signal processing to display, for the first time, the diffusely reflected echoes - in effect, the first grey scale images.

Jack Jellins and I implemented grey scale imaging late that year on our breast scanner. This scanner was installed at Royal North Shore Hospital, where Tom Reeve was our senior medical consultant on the project. The change in image quality was dramatic. Grey scale imaging allowed us to demonstrate, contrary to the generally held opinion at that time, that most malignancies were hypo rather than hyper echoic as described by Wild and Wagai.

Dave Robinson and I implemented grey scale on our obstetrical scanner early the following year, with Bill Garrett as our medical consultant. For the first time we could visualize the chambers of the fetal heart, identify the fetal umbilical vein in the fetal liver and, as an immediate pay off, visualize with near 100 percent accuracy the placenta. Bill Garrett and I mounted a display of our images at the

next WFUMB Congress held in Rotterdam in 1972. The interest in these was dramatic as no one had seen such images previously.

#### 1973 Establishment of ultrasound of the neonatal brain.

That year a fetus with ventriculomegaly was observed leading us to determine if we could achieve similar results in the neonate. In consultation with radiologists from Prince of Wales Hospital, ten neonates undergoing air ventriculography were also examined by ultrasound. Ventricular sizes measured by both methods were in agreement and all further neonatal patients from that hospital were examined by ultrasound only.

1975 Research conducted by the Section differed significantly from that undertaken by the Commonwealth Acoustic Laboratories. Encouraged by our clinical successes and interest in the equipment by clinicians and industry, the Section was formed as an independent Ultrasonics Institute in the Department of Health.

1982 I was elected President of WFUMB for the following three years. The Sydney WFUMB Congress was held in 1985 and attended by over one thousand delegates. The staff of the Institute played a major role in staging this Congress.

1989 The Ultrasonics Institute was transferred to the CSIRO (Commonwealth Industrial and Scientific Organisation) and renamed the Ultrasonic Laboratory.

1997 The Ultrasonic Laboratory was closed signaling the end to uniform ultrasound research in Australia.

1999 I was awarded the AO, an Officer of the Order of Australia.

#### *What are your impressions of the ultrasound technology available today ?*

This is a hard question for me to answer, as I have been retired for 15 years. My impression is that ultrasound technology has matured. The equipment is using modern computer technology, the frequency range has been significantly enlarged and a variety of functions have been incorporated in the equipment to facilitate its use in a variety of applications. Ultrasound has been accepted by a range of specialties, and some of the challenges of today relate to the provision of education and training in the correct use of the equipment in professions where the technique forms a small component of the practice.

Challenges and opportunities still abound. I do not know the status of ultrasound contrast agent and this could well be a major application. I am surprised that modern equipment still does not provide quantitative measurement of blood flow. The use of two dimensional transducers appears to have stalled. The problem of overlying tissue aberration has not been solved. So opportunities exist but how well they will be addressed depends on funding in a climate where interest has shifted to MRI and molecular imaging.

#### *Are you still involved with the ultrasound world ?*

I try to follow the ultrasound literature as I am in a fortunate position to receive major journals that feature ultrasound. Until recently I have been involved with the WFUMB Council as member of its Committees on History and on Archives. At the request of Michael Claudon, Barry Goldberg and I put together a paper "History of Ultrasound and its Presidents". This paper is published on the WFUMB website in the section on History. Today I am not involved with any ultrasound activity.



*George Kossoff, Tom Reeve Jack Jellins (1977)*

## WFUMB CENTER OF EDUCATION CHIȘINĂU, REPUBLIC OF MOLDOVA

**In 2016 a new WFUMB Center of Education was opened in Chișinău, Republic of Moldova. The center is coordinated by the Ultrasonography Training Center of the "Nicolae Testemițanu" University of Medicine Chișinău.**

The first workshop of the center was organized in 4-5 November 2016 in cooperation with the EFSUMB Ultrasound Learning Center of the "Victor Babeș" University of Medicine and Pharmacy in Timișoara, and benefited from the participation of Prof. Dieter Nürnberg, WFUMB Vice President on Education together with Prof. Ioan Sporea, director of the EFSUMB Ultrasound Learning Center Timișoara; Assoc. Prof. Roxana Șirli, Lecturer Mirela Dănilă from the same center.

The workshop covered topics related to abdominal ultrasound and hepatic elastography, and was attended by approximately 200 participants.



The interest of the ultrasound community from Republic of Moldova for these workshops is proved by the large number of participants and their involvement in the sessions.

This year the center will organize again a workshop on an abdominal ultrasound topic – Gastrointestinal Ultrasound. The workshop is scheduled for 26-27 October 2018, and will have Prof. Harald Lutz, Prof. Dieter Nürnberg, Prof. Odd Helge Gilja and Prof. Ioan Sporea as invited speakers.

**Alina Popescu**



The second workshop of WFUMB Center of Education Chișinău was held 24-25 November 2017 in Chișinău. The main topics of the course were the ultrasound diagnosis of thyroid and breast diseases, covered by the invited lecturers, Prof. Ioan Sporea ("Victor Babeș" University of Medicine and Pharmacy, Timișoara), Assoc. Prof. Dana Stoian ("Victor Babeș" University of Medicine and Pharmacy, Timișoara) and Assoc. Prof. Aristida Georgescu (Craiova University of Medicine and Pharmacy). Besides the theoretical presentations, a live demonstration session was also organized. The course was attended by 179 physicians from all over the Republic of Moldova and took place in a friendly atmosphere, participants being actively involved in discussions with lecturers.

