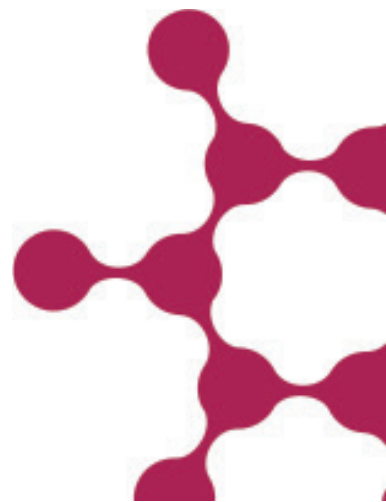


♦♦ DOHA 2017  
9 قطر ICI  
9th international conference  
on isotopes & expo Doha Qatar  
12 - 16 November 2017  
www.9ici.org

# 9th International Conference on Isotopes & Expo Prospectus

**QPS** الجمعية القطرية للفيزياء  
Qatar Physics Society

WORLD COUNCIL ON ISOTOPES  
**WCI**





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# **The 9th International Conference on Isotopes and Expo (9ICI)**

Is held

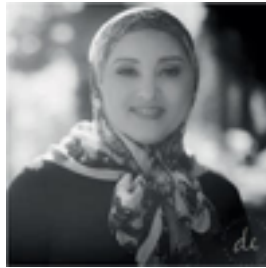
Under the Patronage of His Excellency Minister of  
Municipality and Environment

**Mohammad Bin Abdullah Bin Mitaab  
Al-Rumaihi**



# CONFERENCE OFFICIALS

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Qatar University  
Qatar Physics Society

## Program Co-Chairs:



**PAUL DICKMAN**  
Argonne National Laboratory,  
USA



**ROLF ZEISLER**  
National Institute of Standards  
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President Korean Academy of Science and  
Technology Past WCI President



**VAN ZYL DE VILLIERS,**  
Current WCI President



**NIGEL R. STEVENSON**  
Chief Operating Officer, Serene LLC USA  
Upcoming WCI President

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Professor of Physics, Qatar University  
President, Qatar Physics Society



**DR. HUDA AL-NAEMI**  
Executive Director of Occupational  
Health and Safety  
Hamad Medical Corporation



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Assistant Professor of Physics, Qatar  
University



**DR. DEEPAK KAURA**  
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Medical Services Sidra Medicine



**DR. JIM O' DOHERTY**  
Molecular Imaging Physicist at Sidra  
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**DR. IONNAIS DELAKIS**  
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Occupational Health and Safety,  
Hamad Medical Corporation

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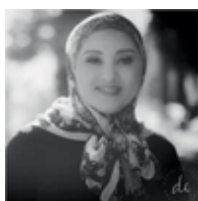


**JONG-KYUNG KIM**  
Past president Korean Atomic Energy  
Research Institute Professor,  
Hanyang University



**ROLF ZEISLER**  
National Institute of  
Standards and Technology  
USA

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Professor of Physics, Qatar  
University  
President, Qatar Physics  
Society



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Georgia Institute of  
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Qatar



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Australian Nuclear Science  
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International Atomic Energy  
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Paul Scherrer Institut  
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Institute for Nuclear Research  
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Pennsylvania State  
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U of S P, Instituto de Pesquisas Energéticas e  
Nucleares (EPEN), Brazil

**XIAOLIN HOU**  
Technical University of Denmark, Denmark

**SIMON JEROME**  
National Physical Laboratory, UK

**SUNG-HEE JUNG**  
Korean Atomic Energy Research Institute  
Korea

**PIETER LOUW**  
NTP Radioisotopes of South Africa  
South Africa

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Studies, USA

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Bhabha Atomic Research Centre  
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**AMANDA YOUKER**  
Argonne National Laboratory, USA

**LUO ZHIFU**  
China Institute of Atomic Energy, China

**BRYAN BEDNARZ**  
University of Wisconsin Madison, USA

**CARLO CHEMALY**  
Director Pharamalead, Lebanon

## Conference Venue



**The 9th International Conference on Isotopes and Expo** is being hosted in the **Marriott Marquis Hotel**, located in the center of Doha's financial district.

Within the hotel, you will find all the facilities needed for a fruitful conference and a pleasant stay. The Marriot Marquis offers a number of restaurants, an outdoor pool and lounge area, and has the added convenience of having easy access to the City Center shopping mall next door, where you can find a supermarket, shops, cinema, restaurants and an ice rink.

A rather unique highlight is located on the 6th floor, which is entirely dedicated to the world's largest carpet museum, displaying carpets from across the Islamic world.

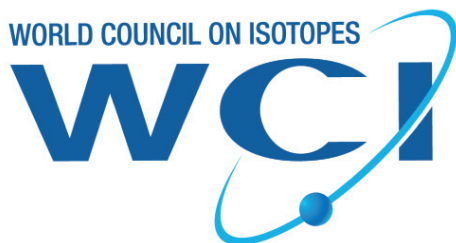
With its central location, the hotel places you within arm's reach of a number of Qatar's attractions. For more information, please reference the Hotspots and Highlights guide on the website.

## Exhibitors



### **Korea Atomic Energy Research Institute:**

The Korea Atomic Energy Research Institute (KAERI) is the first science and technology research institute in Korea to be mandated to achieve energy self-reliance through nuclear technology. It has produced landmark achievements during its 50-year history of nuclear energy development such as the indigenous design of the HANARO research reactor, and the nation's first export of a nuclear energy system to Jordan. KAERI has been preparing for further moving towards the future.



### **World Council on Isotopes (WCI):**

As the founding organization of the International Conference on Isotopes, the World Council on Isotopes facilitates the interactions and exchange of information among all role-players in the global isotope community. It was established in response to the identified need to improve interactions among the diversity of role-players within the global isotope community. The WCI aims to promote safe, environmentally sound and peaceful uses of isotope technology amongst its members.



### **Hamad Medical Corporation (HMC):**

Hamad Medical Corporation (HMC) is the main provider of secondary and tertiary healthcare in Qatar and one of the leading hospital providers in the Middle East. HMC manages 10 hospitals – seven specialist hospitals and three community hospitals – as well as the National Ambulance Service and home and residential care services. In January 2016, HMC achieved the significant distinction of becoming the first healthcare system across the globe to have all its hospitals accredited by Joint Commission International under the Academic Medical Center accreditation program.

## Exhibitors



### **Sidra Medical and Research Center:**

Sidra Medical and Research Center is an ultramodern, all-digital academic medical center which will set new standards in patient care for women and children in Qatar, the Gulf region and internationally. Sidra is part of a dynamic research and education environment in Qatar and through strong partnerships with leading institutions around the world, Sidra is creating an intellectual ecosystem to help advance scientific discovery through investment in medical research.



الجمعية القطرية للفيزياء  
Qatar Physics Society

### **Qatar Physics Society (QPS):**

Qatar Physics Society is a non-profit organization aimed at promoting the highest quality of teaching, learning and physics research in Qatar and the region. Founded in 2016, Qatar Physics Society is the nation's first scientific society, and aspires to build a strong community and begin a legacy of physics in the years to come.

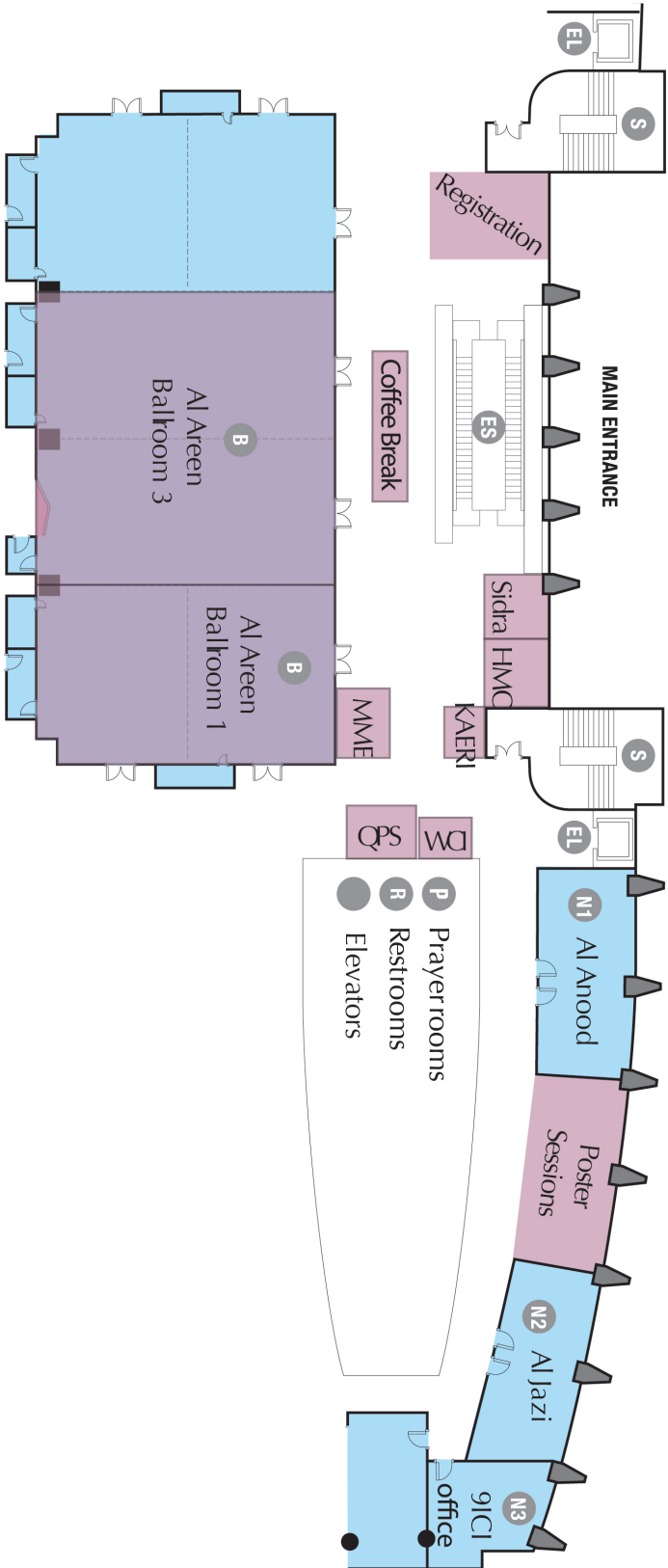


### **Radiation & Chemical Protection Department Ministry of Environment:**

This is the regulatory and licensing body for radiation and chemical applications. They are responsible for monitoring and coordinating all relevant organisations, activities and provide the necessary bylaws.

# Floorplan

## 1st Floor



West Bay City Center | Omar Al Mukhtar Street, PO Box 25500, Doha, Qatar | T: 5000 4419 974+ | F: 5100 4419 974+

[marriottmarquisdoha.com](http://marriottmarquisdoha.com)

## Social Program

### Welcome Reception

Sunday 12 November 18:00 - 20:00 at the Marriott Marquis, first floor Foyer.

The Welcome Reception on Sunday evening will be a wonderful opportunity to network with and get to know conference delegates, who have come from all over the world to attend the 9 International Conference on Isotopes. This will take place in the Marriott Marquis hotel, the venue of the ensuing sessions over the following days.

Business casual dress is recommended.

### Cultural Tour and Gala Dinner

Wednesday 15 November after sessions

The Gala Dinner will be a particularly special night, as not only will we get the chance to acknowledge the dedication of our colleagues to their research, but a special cultural tour has been arranged to give participants the chance to experience more of Qatari culture.

The first item on the itinerary will be a **Camel Race** in the Shahaniya area of Qatar, just outside of Doha city. This is an Arabian tradition that can be traced back more than 1000 years, to the Early Islamic period. Over the centuries the sport has matured in rather interesting ways, such as the inclusion of mechanical jockeys, but it remains a must-see when visiting Qatar.

Afterwards, two exclusive tours have been arranged; delegates will have the chance to tour a **wildlife reserve**, offering access to animals native to Qatar such as the oryx (the national animal of Qatar; featured on the Qatar Airways logo), and then a guided tour of the extensive collection in the **Sheikh Faisal bin Qassem Museum**. The museum houses the personal collection of Sheikh Faisal, which displays a material and social history of Qatar through a variety of items like documents, porcelains, carpets, silverware and even vehicles.

The Gala Dinner will take place after the final tour, within the grounds of the Sheikh Faisal Museum. All transport has been pre-arranged, and an email with instructions will be sent out in advance of the evening.



# 9ICI CONFERENCE SCHEDULE 12 – 16 NOVEMBER 2017

The conference will take place on first floor of Marriott Marquis, City Centre, Doha

**SUNDAY 12 NOVEMBER 2017**

**Foyer, 1st Floor**

**14:00 – 18:00 Conference Registration**

Registration opens Sunday 12th November at 14:00

If you are already in Qatar on Sunday, we encourage you to register on Sunday to get your badge, conference prospectus and all information about the coming up week

**18:00 - 20:00 Welcome Reception and Networking Event**

The Welcome Reception on Sunday evening will be a wonderful opportunity to network with and get to know conference delegates, who have come from all over the world to attend the 9th International Conference on Isotopes. This will take place in the Marriott Marquis hotel, the venue of the ensuing sessions over the following days. Business casual dress is recommended.

**18:00 - 20:00 Exhibition and Posters**

**MONDAY 13 NOVEMBER 2017**

**Foyer, 1st Floor**

**7:30**

**Registration**

**Foyer, 1st Floor**

## OPENING PLENARY

Al Areen 3 Hall

**Chair: Ilham Al-Qaradawi, Qatar, Paul Dickman, USA**

**8:30**

### WELCOME REMARKS

- His Excellency Mohammad Bin Abdullah Al-Rumaihi, Minister of Municipality and Environment
- Prof. Ilham Al-Qaradawi, 9ICI Chair
- Van Zyl De Villiers, WCI President
- Dr. Abdul Sattar Al-Taie, QNRF Director
- Dr. Deepak Kaura, Executive Chair, Foundation Medical Services, Sidra Medicine
- Prof. Mariam Al-Maadeed, VP for Research & Graduate Studies, Qatar University

**9:30** Mary Alice Hayward, Deputy Director General, IAEA  
**Global Perspective, Local Needs: My Reflections on the Role of Isotopes in the World**

**10:00** Coffee Break & Networking Foyer, 1st Floor

## **PLENARY SESSION** Al Areen 3 Hall

### **FOCUS ON THE FUTURE**

**10:30** Mark Lesinki, Canadian Nuclear Laboratories  
**Isotopes from Canadian Nuclear Laboratories: A Proud Legacy with a Bright Future**

**11:00** Boris Zhuikov, Institute for Nuclear Research of Russian Academy of Sciences, Russian Federation  
**Production of Medical Radioisotopes in Russia: Prospects for Global Collaboration**

**10:30** Syed M. Qaim, Forschungszentrum Juelich, Germany  
**Development of Non-Standard PET Radionuclides**

**12:00** **Group Photo**

**12:10** **Lunch and Networking**

### **Session 1: Accelerator Produced Isotopes**

Al Areen 3

**Chairs: Ferid Haddad; France, Ioannis Delakis; Qatar**

**13:00** Juan Esposito, Giovanni Florentini; INFN -Legnaro National Laboratories, Italy Laramed  
**A New High-Energy Cyclotron Facility for the Production of Unprecedented Radionuclides or Medicine**

**13:20** Maxim Kiselev; Zevacor, USA  
**Production of Medical Isotopes Using 70 MeV Cyclotron from IBA at New Zevacor Facility in Indianapolis, USA**

**13:40** Susanta Lahiri, Dibyasree Choudhury, Nabanita Naskar, Melanie Delonca, Thierry Stora, Joao Pedro Ramos, Elodie Aubert, Alexandre Dor-sival, Joachim Vollaire, Ricardo Augusto, Alfredo Ferrari; Saha Institute of Nuclear Physics, India  
**Production and Estimation of  $^{209}\text{At}$  by Secondary Particle Reaction from 1.4 GeV Proton Irradiated Lead-Bismuth**

**14:00** Roberto Formento Cavaier, Haddad Ferid, Zahi Ilyes, Stora Thierry, Sounalet Thomas  
**Advanced Accelerator Application, France High Specific Activity Cyclotron Produced Scandium-47**



**14:20** Zeynep Talip, Rugard Dressler, Jean Christophe David, Christof Vockenhuber, Elisabeth Muller, Erik Strub, Dorothea Schumann; Paul Scherrer Institute, Switzerland  
**Determination of the Long-Lived Radionuclides from Proton-Irradiated Heavy Metal Targets**

### **Session 2: Special Topic Panel: Reducing the Risk of High-Risk Isotopes for Non-Proliferation and Nuclear Security**

Al Areen 1

**13:00** **Moderators: Miles Pomper; Senior Fellow, James Martin Center for Nonproliferation, Ioanna Iliopoulos, Senior Consultant, Nuclear Threat Initiative, USA**

**Panellists:**

**Miles Pomper; Senior Fellow, James Martin Center for Nonproliferation, USA**

**Ioanna Iliopoulos, Senior Consultant, Nuclear Threat Initiative, USA**

**Fabien Feron; French Nuclear Safety Authority (ASN), France**

**Jacob Kamen; Chief Radiation & Laser Safety Officer, Mount Sinai Medical Center, USA**

**Ira Goldman; Senior Director, Lantheus Medical Imaging, USA Gary DeLeon; Director, Edlow International, USA**

**14:40 – 16:00** **Poster Session**

**15:00** **Coffee Break & Networking**

**Foyer, 1st Floor**

### **Session 3: Accelerator and Reactor Produced Isotopes**

Al Areen 3

**Chairs: Boris Zuikov, Russia, Cathy Cutler, USA**

**16:00** Tetsuya K. Sato; Japan Atomic Energy Agency, Japan

**Measurement of the First Ionization Potentials of Heavy Actinides**

**16:20** Ferid Haddad, Guertin, Metivier, Duchemin, Michel; Subatech / GIP Arronax, France

**Constraining the Talys Code Using Data Collected for Medical Applications**

**16:40** Muhammad Shahid; Pakistan Nuclear Regulatory Authority, Pakistan

**Study of Co-59(p,x) Reaction and Measurement of Production Excitation Functions of Ni-56,57, Co-55,56,57,58, Mn-54,56, Cr-51**

**17:00** Ichiro Nishinaka, Kazuyuki Hashimoto, Hiroyuki Makii; National Institutes for Quantum and Radiological Science and Technology, Japan

**Rn-211/At-211 Generator Based on Dry-Chemistry**

**17:20** Emilio Andrea Maugeri, Paul Scherrer; Institut Switzerland  
**Use of 7Befor Nuclear Astrophysics Studies**  
**Determination of the Long-Lived Radionuclides from Proton-Irradiated Heavy Metal Targets**

**17:40** Yury Toporov, Rostislav A. Kuznetsov, Evgeny G. Romanov, Valery; ROSA-TOM, Joint Stock Company Isotope, Russian Federation.  
**Production of Cf-252 by Irradiating Bk-249 and Cf-249**

### **Session 4: Industry and Agriculture**

Al Areen 3

**Chairs: Richard Howard, USA, Hassan Kharita, Qatar**

**16:00** Achim Kleinrahm; ZAG Zyklotron AG, Germany  
**Installations at and Services of ZAG Zyklotron AG for Development and Production of Innovative, Radioactive Products of Highest Quality for Medical Applications and Mechanical Engineering**

**16:20** Daqian Hei, Can Cheng, Wenbao Jia; Nanjing University of Aeronautics and Astronautics, China  
**Feasibility Study for Determining Elemental Composition of Iron Ore with a New PGNA Setup**

**16:40** Nannan Zhao, Beijing Hualixing Sci-Tech Development Co. Ltd, China  
**Radiation Source Online Monitoring System**

**17:00** Xiaojing Guo, Litao Li, Peng Cong; Tsinghua University, China  
**Drive-Through Passenger Vehicle Inspecting System Using Cobalt-60 And High-Pressure Gas Array Detector**

**17:20** Ma Samad Khan; Bangladesh Agricultural University, Mymensingh, Bangladesh  
**Study on Reproductive Performance of Indigenous Cows by Using Isotopes**

**17:40** Mohammed Haji; Minister of Municipality & Environment, Qatar  
**The regulatory authority in Qatar and its legislative and regulatory role on nuclear and radiological safety and security**

**TUESDAY 14 NOVEMBER 2017**

**Foyer, 1st Floor**

**7:30** Registration

**Foyer, 1st Floor**

## **MARIE CURIE PLENARY**

Al Areen 3

**Chair: Mary Alice Hayward, IAEA, Ilham Al-Qaradawi, Qatar**

**08:25** **OPENING REMARKS**

Eric Chevallier; Ambassador of France in Qatar

**08:30** Jean-Louis Alberini, Institut Curie, France  
**Marie Curie, a Committed Woman**

- 09:00** Virginia Tsapaki; Secretary General for the International Organization for Medical Physics (IOMP), Konstantopoulio General Hospital, Greece  
**Medical Physics: Innovation and Technology Advances for the Benefit of Women Patients and Staff**
- 09:30** Monica Regalbuto; Idaho National Laboratory, USA  
**Nuclear Sciences: A Personal Journey and Unplanned Lifetime of Service**

**10:00** Coffee Break & Networking Foyer, 1st Floor

## ICI Special Topics

Al Areen 1

**Chairs: Monica Regalbuto; Idaho National Laboratory, USA, Luo Zhifu. China**

- 10:30** Meera Venkatesh, Joao Osso Junior, Amir Jalilian, Patrick Brisset, Arjan Koning, Marco VerPELLI; IAEA, Austria  
**The Role and Activities of the IAEA in Promoting Nuclear Applications - Focus on Production and Use of Radioisotopes**
- 11:00** Simon Jerome; National Physical Laboratory, UK  
**Evolution and Outcomes from NPL Low-Level Radioactivity Measurement Proficiency Testing**
- 10:30** Xiaolin Hou; Technical University of Denmark, Center for Nuclear Technologies, Denmark  
**Characterisation of Materials for Decommissioning of Isotope Production Facilities**

## Special Session:

Al Areen 3

## International Day of Medical Physics

**Chairs: Virginia Tsapaki, Greece, Huda Al Naemi, Qatar**

- 10:30** Huda. Al-Naemi, Hamad Medical Corporation, Clinical Imaging & Occupational Health and Safety, Qatar  
**IN MEMORY OF MARIE CURIE**
- 10:45** Hassan Kharita, Hamad Medical Corporation, Qatar  
**Medical Physics Society in Qatar. Hassan Kharita**
- 11:00** Verginia Tsapaki; International Organization for Medical Physics (IOMP), Konstantopoulio General Hospital, Greece  
**IOMP Women survey data**

- 11:15** Rabih W.Hammoud; Hamad Medical Corporation, Qatar  
**Medical Physicists Certification Process and Examination in the Middle East**
- 11:30** Nabil Iqeillan, Occupational Health and Safety, Hamad Medical Corporation, Qatar  
**Medical Physics Education and Training in MEFOMP Countries**
- 11:45** Hanan AlDousari; Medical Physics Unit, Radiation Safety, Jaber AlAhmed Center for nuclear medicine, Kuwait  
**The role of medical physicist in Kuwait**

**12:00 Lunch and Networking**

**Session 5: Production of PET Radionuclides**

Al Areen 3

**Chairs: Syed Qaim, Germany, James O' Doherty, Qatar**

- 13:00** Cathy Cutler, Anthony Degraffenreid; Brookhaven National Laboratory, USA  
**Long-Lived PET Generator Diagnostics**
- 13:20** Sandrine Huclier, C. Alliot, M. Pageau, Ferid Haddad; Laboratoire Subatech & ARRONAX France  
**Novel Positron Emitters via Generator System: A Focus on Sc-44m/Sc-44**
- 13:40** Shuza Uddin, S. M. Qaim, G. N. Kim; Bangladesh Atomic Energy Commission, Bangladesh  
**Investigation of Novel Routes for Production of Nonstandard Positron Emitters Cu-61 and Cu-64**
- 14:00** Susanta Lahiri, Nabanita Naskar; Saha Institute of Nuclear Physics, India  
**Production and Separation of Non-Standard Rare Earth PET Isotopes by Heavy Ion Activation**
- 14:20** Mazhar Hussain, Muhammad Naveed Aslam, Nouman Amjed, Haleema Zainab, Syed M Qaim; GCU-Lahore and University of Milan, Pakistan  
**Evaluation and Standardization of Charged Particle Induced Reaction Cross Sections Data for the Production of Some Non-standard PET Radionuclides**
- 14:40** Hadi Fayad, Hamad Medical Corporation, Qatar  
**PET/CT: Going Beyond FDG**

**Session 6: Isotopes in the Environment**

Al Areen 1

**Chairs: Raymond Cao, USA, Hiromitsu Haba, Japan**

- 13:00** Steven Biegalski; Georgia Institute of Technology, USA  
**Development of Urban Canyon Debris Sample for Gamma Ray Spectroscopy**

- 13:20** Takahiro Nakanishi; Japan Atomic Energy Agency, Japan  
**Spatiotemporal Variation of Radio-Cesium in the Water System in Fukushima Prefecture**
- 13:40** Hiroshi Kurikami; Japan Atomic Energy Agency, Japan  
**Models on Radiocesium Migration in the Surface Water System in Fuku-shima Prefecture**
- 14:00** Timothy Payne, ANSTO, Australia  
**Legacy Low Level Radioactive Waste Disposal Sites - An International Approach**
- 14:20** Sani Kasim; Nigeria  
**Evaluation of Efficiency of a Setup Designed for Analysis of Radon Using Electronic Radon Detector**
- 14:40** Hadi Fayad, Hamad Medical Corporation, Qatar  
**PET/CT: Going Beyond FDG**

**15:00** Coffee Break & Networking Foyer, 1st Floor

### **Session 7: Nuclear Medicine**

Al Aren 3

Chairs: Ira Goldman; USA; James O' Doherty, Qatar

- 15:30** Gilbert Gonzales; Serene, LLC, USA  
**Nuclear Medicine Applications of the Novel Theranostic Isotope Sn-117m**
- 15:50** Nigel Stevenson, Cynthia A. Doerr, Gilbert R. Gonzales; Serene, LLC, USA  
**Retention and Radiation Field of a Sn-117m Colloidal Suspension in Canine Intra-Articular Injections**
- 16:10** Juan C Manrique; Mexico  
**Radiation Dosimetry in Healthy Subjects of Ga-68-[Lys1-Lys3(Dota)-Bombesin, a Potential Theranostic Tracer in Oncology**
- 16:30** Ladislav Viererbl; Research Centre Rez Ltd., Czech Republic  
**K-42 Radionuclide as a High Energy Beta Radiation Source for Eye Cancer Treatment**
- 16:50** Luis Ocampo Gir, K. Unlu; Pennsylvania State University, USA  
**Use of Isotopes to Validate Sub-Pixel Resolution with Timecorrelated Transient Signals in Pixelated CdZnTe Gamma Ray Sensors**
- 17:10** Nigel Stevenson; Serene, LLC, USA  
**Simulation of Sn-117m Radiosynoviorthesis Including Phagocytotic Migration within**
- 17:30** Slimane Semghouli; Higher Institute of Nursing Professions and Health Techniques, Agadir, Morocco  
**Radiation Exposure During Paediatric CT Procedures in Ibn Sina Children's Hospital of Rabat**

## Session 8: Isotopes in the Environment

Al Areen 1

**Chairs: Timothy Payne, ANSTO, Australia, Paul Dickman, USA**

- 15:30** Mayeen Khandaker, Saleh Mansoor Hussein; University of Malaya, Malaysia  
**Evaluation of Radon Concentration in Irrigation and Drinking Waters from Eastern Part of Oman Using Nuclear Track Detectors and Estimation of Corresponding Doses to Human Health**
- 15:50** Hauwau Kulu Shuaibu. A. S. Arabi; Bauchi State University Gadau, Nigeria  
**Evaluation of Levels of Radon Isotopes and Effectiveness of Traditional Mitigation Measure for Radon Contaminated Groundwater**
- 16:10** Ji Young Han; Daegu Catholic University, Korea  
**A Study on the Derivation of Items for the Establishment of Standard Procedures on Residual Radioactivity Measurement**
- 16:30** Suleiman, I Babale; Department of Geology, Bayero University, Kano-Nigeri Nigeria  
**Radon and Groundwater Chemistry from Areas of High Radiometric Amplitudes**

**WEDNESDAY 15 NOVEMBER 2017**

**Foyer, 1st Floor**

**7:30**

**Registration**

**Foyer, 1st Floor**

## Session 9: Nuclear Medicine continued

Al Areen 3

**Chairs: Simon Jerome; UK, Susanta Lahiri; India**

- 08:30** Nigel Stevenson; Serene, LLC, USA  
**Novel Treatments for Arthritis In Humans and Animals Using Sn-117m Colloids and Labelled Molecules**
- 08:50** Jim O' Doherty; King's College London, UK  
**Whole Body Radiation Dosimetry of a New PET Probe (18F-TFB) for Imaging of Sodium Iodide Symporter Expression**

## Session 9: ECONOMICS, SAFETY, AND SECURITY

- 09:10** Yeo Ryeong Jeon; Korea  
**A Study on the Risk Assessment of Radiation Terrorism in the Republic of Korea Using the Global Incident and Trafficking Database**

**09:30** Jim O' Doherty, Ioannis Delakis, Kellie Smith; Sidra Hospital, Qatar  
**Practical Aspects of Staff Radiation Safety in a New Nuclear  
Medicine Facility**

**09:50** Da Yeong Gwon; Korea  
**A Study on the Main Factors of Radiation Risk Index Model for  
Assessing the Risk in Radiation Workplace**

## Session 10: Isotope Devices, Isotope Tracers and Other Applications

Al Areen 1

**Chairs: Bernhard Ponsard; Belgium, Peter D'Amico; Canada**

**08:30** Ira Goldman; Lantheus Medical Imaging, USA  
**Enhancing the Supply of Isotopes for Medicine and Industry**

**08:50** Abdulmajeed Ibrahim; Nigerian Nuclear Regulatory Authority, Nigeria  
**The Need for Radio Isotopes Production in Sub Sahara Africa For  
Sustainable Development in the Application of Radiation Science  
and Technology: Case Study Nigeria**

**09:10** Hiromitsu Haba; RIKEN, Japan  
**Production of Radioisotopes for Application Studies at Riken Ri  
Beam Factory**

**09:30** Lei Cao, Shelly Li; The Ohio State University, USA  
**Na-22 as a Tracer to Measure Molten Salt Mass**

**09:50** Richard Howard; Oak Ridge National Laboratory, USA  
**Establishing a Process for Qualifying Additively Manufactured  
Irradiation Targets to Produce Radioisotopes**

**10:10** Coffee Break & Networking Foyer, 1st Floor

## WCI President's Forum

Al Areen 3

**Chairs: Van Zyl de Villers, WCI President, Nigel Stevenson, WCI  
President Elect**

**10:40** **Panelists:**  
Tina Eboka; NTP Radioisotopes SOC Ltd, South Africa  
**The Sustainability Path: Safety, Security and Supply In High-Volume  
[Commercial] Radioisotope Production**  
Corey Hinderstein; Institute of Nuclear Materials Management; and  
National

**Nuclear Security Administration, U.S. Department of Energy, USA  
International Safeguards, Non-Proliferation and Nuclear Security  
Issues of Relevance to the Isotope Value Chain**

Bernard Ponsard; AIPES Security of Supply Working Group; and BR-2  
Reactor, Belgium

**Perspectives from the High-Level Group on the Security of Supply of  
Medical**

**Radioisotopes and the Association of Imaging Producers and  
Equipment Suppliers**

Ramzi Jammal; Canadian Nuclear Safety Commission, Canada

**The Regulatory Perspective on Radioisotopes**

Brigadier Hassan Saleh Al-Nesf; National Committee for the  
Prohibition of Weapons, Qatar

**Qatar's Perspective on Non-Proliferation and Nuclear Security as  
Applicable to the Production, Distribution and Application of  
Radioisotopes**

Aisha AlBakir; Minister of Municipality & Environment, Qatar

**The regulatory authority in Qatar and its legislative and regulatory  
role on nuclear and radiological safety and security**

**12:00**

Shri. Anil K.Anand; President, National Association For Application  
Of Radioisotopes And Radiation in Industry (NAARRI)

**Introduction to NAARRI and NAARRI International Conference on State of  
The Art Radiation Processing (NICSTAR-18)**

**12:10**

**Lunch and Networking**

**14:00**

**Cultural Tour**

**19:00**

**Gala Dinner**

**THURSDAY 16 NOVEMBER 2017**

**Foyer, 1st Floor**

**7:30**

**Registration**

**Foyer, 1st Floor**

**Session 11: Economics, Safety, and Security**

Al Areen 1

**Chairs: Steve Biegalski; USA, Gary DeLeon; USA**

**08:30**

Ira Goldman; Lantheus Medical Imaging, USA

**Securing a Reliable Supply of Mo-99 and Tc-99m**



- 08:50** William Stewart, John Zarling, Michael Schultze; Los Alamos National Laboratory, USA  
**Office of Radiological Security Transportation Security Efforts**
- 09:10** Maddalena MaiettaSebastien Avila; Lemer Pax, France  
**Cost-Effective Design Strategies for a Type B Container Based on Numerical Calculations**
- 09:30** John Zarling; Idaho National Lab, USA  
**Office of Radiological Security- Off Site Source Recovery Program Solution to Shipping Challenges of High Activity Sealed Radioactive Sources**
- 09:50** Vitaly Fedchenko; Stockholm International Peace Research Institute (SIPRI), Sweden  
**Isotope Science's Contribution to Nuclear Security, Nuclear Non-Proliferation and Arms Control**
- Session 12: Reactor and Alternate Production of Isotopes**  
Al Areen 1  
**Chairs: Jan Rijn Zeevaart; South Africa, Abdulmajeed Ibrahim; Nigeria**
- 08:30** Bernard PonsardJaime Simón, Zech Sandlin, Nigel R. Stevenson; SCK.CEN / BR2 Reactor, Belgium  
**Production and Preparation of Sn-117m from the BR2 Reactor**
- 08:50** Richard Howard; Oak Ridge National Laboratory, USA  
**Design and Qualification of Irradiation Targets for Isotope Production in Research Reactors**
- 09:10** Yury Toporov; ROSATOM, JSC, Russian Federation  
**Production of Californium-252 in the High-Flux Reactor SM**
- 09:30** Arjan Bos; URENCO Nederland B.V.,  
**The Netherlands Stable Isotopes Enrichment at Urenco Nederland: 25 Yearsof Development and Progress**
- 09:50** Giorgia De Guido; Politecnico di Milano, Italy  
**Simulation of Multicomponent Isotope Distillation for N-15 Production**

<b>10:10</b>	Coffee Break & Networking	Foyer, 1st Floor
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## CLOSING PLENARY

Al Areen 3

**Chairs: Myung-Chul Lee; Korea, Van Zyl de Villers; IAEA**

- 10:40** Nigel Stevenson; Serene LLC USA  
**Radiosynoviorthesis: Radioisotope Therapy for Arthritic Conditions**

- 11:00** Jan Rijn Zeevaart; South African Nuclear Energy Cooperation South Africa  
**Current Applications of Ga-68 and the Window it Opens for the Theranostic Approach**
- 11:20** David Smith; International Atomic Energy Agency, Austria  
**The Science of Signatures: Isotopes Applied to Nuclear Forensics**
- 11:40** **Closing Remarks:**  
Ilham Al-Qaradawi, 9ICI Chair  
Nigel Stevenson, WCI President  
10 ICI Host Presentation

**12:10** **Lunch and Goodbyes**

**13:00** **Optional Technical Tour**

**End of 9ICI**

## Poster Presentations

### Screen 1: Isotope Production

#### **Extraction of $^{227}\text{Ac}$ From Irradiated Radium Targets To Produce $^{223}\text{RaCl}_2$**

Pavel S. Butkaliuk, Rostislav A. Kuznetsov, Irina L. Butkaliuk

Joint Stock Company, SSC RIAR, Russian Federation

#### **Production of Sr-89**

Pavel S. Butkaliuk, Rostislav A. Kuznetsov, Valery A. Tarasov, Evgeny G. Romanov

Joint Stock Company, SSC RIAR, Russian Federation

#### **Production of $^{223}\text{RaCl}_2$ FROM $^{227}\text{Ac}$ : Impurity Content Measurement**

Pavel S. Butkaliuk, Rostislav A. Kuznetsov, Irina L. Butkaliuk, Alexander V.

Kupriyanov,

Joint Stock Company, SSC RIAR, Russian Federation

#### **Extraction of $^{226}\text{Ra}$ and $^{210}\text{Pb}$ From Old Radium Sources**

Pavel S. Butkaliuk, Irina L. Butkaliuk, Rostislav A. Kuznetsov

Joint Stock Company, SSC RIAR, Russian Federation

#### **Production of $^{252}\text{Cf}$ by Irradiating $^{249}\text{Bk}$ and $^{249}\text{Cf}$**

Pavel S. Butkaliuk, Valery A. Tarasov, Evgeny G. Romanov, Yury G. Toporov,

Rostislav A. Kuznetsov, Alexey V. Kupriyanov, Alexey L. Petelin

Joint Stock Company, SSC RIAR, Russian Federation

### Screen 2: Isotope Production

#### **Radio-Isotope Production Facility Based on Komac 100-Mev Proton Linac**

Kye-Ryung Kim, Myung-Hwan Jung, Won-Je Cho, Sang-Pil Yun, Yi-Sub Min, Hyeok-Jung Kwon, Yong-Sub Cho

Korea Atomic Energy Research Institute, Gyeongju, Korea

#### **A Prediction Model of I-131 Curies Based on Molybdenum-99 Curies Produced in the Safari-1 Reactor**

Martin Sekgodi

NTP Radioisotopes SOC Ltd, South Africa

#### **A Separate Method For Improving Enrichment of Marginal Components of Isotopes**

Cong Yi-kun, Xie Qing

Institute of Physical and Chemical Engineering of Nuclear Industry, Tianjin, China

### **Screen 3: Isotope Production**

#### **Medicis-Promed: Innovative Radionuclides For Medicine Applications**

Roberto Formento Cavaier, Maddalena Maietta and the Medicis Promed collaboration Subatech, Arronax, France

#### **ORIP\_XXI SOFTWARE TO SUPPORT RADIONUCLIDES PRODUCTION**

Yury Toporov

#### **REACTOR XENON LOOP FOR IODINE-125 PRODUCTION**

Yury Toporov

#### **UPGRADING OF <sup>131</sup>I PRODUCTION FROM IRRADIATED TELLURIUM OXIDE AT JSC “SSC RIAR”**

Yury Toporov

### **Screen 4: Environmental Applications**

#### **Tritium Measurement in Water Samples From Mangrove Habitat of Indian Sundarban**

Susanta Lahiri, Nabanita Naskara, Punarbasu Chaudhuri, Sayantani Mitra Saha Institute of Nuclear Physics, Kolkata, India

#### **Use of Soluble Aerosol Filters in Liquid Scintillation Spectroscopy**

Ivan.V. Buryanenko, A.B. Rogozev, B.I. Rogozev, Y.A. Tychinkin, S.V. Sepman, S.V. Malinovsky, RITVERC GmbH, D.I.Mendeleyev Institute for Metrology, FSUE, Russian Federation

#### **Point-Tape Radioactive Source For Radioactive Level Gauges**

Alexander V. Punin, Andrew E. Kozlov, Vasily V. Lobanov, Yuri V. Lobanov, Andrew B. Rogozev, Mikhail Yu. Silin, Mikhail V. Mironov, Andrew V. Koptev, Lev I. Orlov. Aleksandr A. Bespokoev, Vladislav Yu. Tselovalnikov, RITVERC GmbH, EcoPhysPribor ZAO, Russian Federation

#### **Effective Dose Rate from the Naturally Occurring Radionuclides in Soils**

Feng-Yun J. Huang, Fang-Yuh Hsu, Jiunn-Hsing Chao, National Tsing Hua University, Hsinchu, Taiwan

### **Screen 5: Industrial Applications**

#### **Uranium Is Nuclear Material? Or Radioisotope? In Korean Nuclear Safety Act.**

Young Sub Lee, Min Cheol Song, Sang Hyun Park, Min Kyung Kim, Hyun Suk Yoon, Hwe In Kim, Jaeho Lee, Jae Kwon Jang, Korea Institute of Nuclear Safety, Daejeon, Republic of Korea

## **Miniaturized Delay Bed System For Radioxenon From Fission Mo-99 Production Process**

Suseung Lee, Seung-Kon Lee, Ul Jae Park, Soon-Bog Hong, Kyung-Duk Jang, Myunggoo Kang and Jun Sig Lee, Korea Atomic Energy Research Institute, Daejeon, Republic of Korea

## **Numerical and MCNP Simulation for Pebble Dynamics Detection CT in HTR**

Authors; Lu Jianchao, Liu Xi-ming, Wu Zhi-fang  
Tsinghua University, Beijing, China

## **Screen 6: Dosimetry**

### **Dose Analysis For Paediatric Patients Undergoing Cardiac Catheterization At Hamad General Hospital At The State Of Qatar**

Huda.M. Al Naemi, Hesham.A. Al-Saloos, Antar.E.Aly  
Hamad Medical Corporation, Doha, Qatar

### **Staff Radiation Doses in Interventional Cardiology Procedures at Hamad Medical Corporation Hospitals in Qatar**

Huda M. Al-Naemi, Mohamad H. Kharita and Antar. E. Aly  
Hamad Medical Corporation, Doha, Qatar

### **Comparison of Radiation Dose from Voiding Cystourethrogram and Direct Radionuclide Cystogram in Assessment of Vesicoureteric Reflux**

Mohamad A. Hamza, Nabil.Iqeillan, Tahiya S.Ahmed, Huda.M.Al Naemi  
Hamad Medical Corporation, Doha, Qatar

### **New Protocol to Reduce Fetal Radiation Dose During Prophylactic Balloon Insertion in Pregnant Patients With Abnormal Placental Adherence**

A. Barah, A. Abualruz, M.B. Gomaa, A. Almuzrakchi, V. Chavan, O. Almokdad, N. Iqeillan, H. Al-Naemi, A. Omar , Hamad Medical Corporation, Doha, Qatar

### **Optimization of PET/CT Examination and Patient Dose Management**

Authors; Hanan Aldousari, Jaber AlAhmed Center for Nuclear Medicine, Kuwait

## **Screen 7: Dosimetry**

### **Radioactive Waste Management in Hamad Medical Corporation Hospitals**

Antar E. Aly, Mahmoud A. Tarabieh, Mohamad H. Kharita and Huda M. Al-Naemi, Hamad Medical Corporation, Doha, Qatar

### **Patient Doses Assessment for Pediatric Patients for some Digital Diagnostic Radiology Examination in Emergency Department in Hamad Medical Corporation**

Huda M. Al Naemi Ibrahim I. Abdallah, Antar E. Aly, Mohammed H. Kharita, Hamad Medical Corporation, Doha, Qatar

**A Comparative Study On Type Of Shielding Material For Low Loaded Molybdenum-99/Techne-99m Generators Against High Loaded Molybdenum-99/Techne-99m Generators**

Kunjulwa Garrine, NTP Radioisotopes SOC Ltd, South Africa

**Optimal Respiratory Motion Correction Through the Use of a Patient Respiratory Motion Model**

Hadi Fayed, Dimitris Visvikis, Hamad Medical Corporation, Doha, Qatar

**Device associated infection rate in a medical-surgical critical care unit**

Zulfadhli Zaini,

**Screen 8: Medical Applications**

**Evaluation of Co-cross-linking Hydrogels for Local Delivery <sup>188</sup>Re-dox-nanoliposome Drugs in Breast Tumor Bearing Mice**

Feng-Yun J. Huang, Cheng-Chieh Hung, Jiunn-Hsing Chao, Tsai-Yueh Luo, Bor-Tsung Hsieh, National Tsing Hua University, Central Taiwan University of Science and Technology, Institute of Nuclear Energy Research, Taiwan

**Geometric Accuracy of the MR Imaging Techniques Used for Respiratory Motion**

Tarraf Torfeh, Rabih Hammoud, Maeve McGarry, Tarek El Kaissi, Souha Aouadi, Noora Al-Hammadi, Hamad Medical Corporation, Doha, Qatar

**Evaluation of Dixon Type MRI Sequence for Soft Tissue Segmentation in the Pelvis**

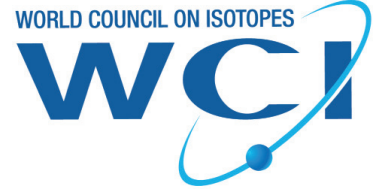
Rabih Hammoud, Maeve McGarry, Tarraf Torfeh, Souha Aouadi, Primoz Petric, Noora Al-Hammadi, Hamad Medical Corporation, Doha, Qatar

**Phantom-based evaluation of diffusion-weighted imaging with head & neck coil**

Tarraf Torfeh, Rabih Hammoud, Maeve McGarry, Souha Aouadi, Noora Al-Hammadi, Hamad Medical Corporation, Doha, Qatar



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