



# World Congress on Medical Physics & Biomedical Engineering

June 3–8, 2018  
Prague, Czech Republic



## Report





Motto:

“Make Progress,  
Face Challenges,  
Get Solutions”

[www.iupesm2018.org](http://www.iupesm2018.org)

## CONTENT

<b>INTRODUCTION</b>	<b>4</b>
<b>HOSTING ASSOCIATIONS AND ORGANIZING COMMITTEES</b>	<b>4</b>
International Union for Physical and Engineering Sciences in Medicine (IUPESM)	4
International Organization for Medical Physics (IOMP)	4
International Federation of Medical and Biological Engineering (IFMBE)	4
Czech Association of Medical Physicists (CAMP)	5
Czech Society for Biomedical Engineering and Medical Informatics (CSBEMI)	5
Congress Coordinating Committee	5
Congress Organizing Committee	5
Finance Committee	6
Scientific Committee	6
Program Committee	6
Publicity Committee	6
Education Committee	7
Professional Standards Committee	7
Publication Committee	7
International Advisory Board (BME)	8
International Advisory Board (MP)	8
Professional Conference Organizer (PCO)	8
<b>VENUE</b>	<b>9</b>
Setup and Floorplans	9
Signage	10
<b>REGISTRATION</b>	<b>11</b>
Registration Setup	11
Registration Fees	12
Delegate Registration Fees	12
List of Registration Fees	13
Registration Statistics	14
Registration Flow	15
Registration by Country	15
Registration by Continent	16
Registration by Sex	16
Registration by Specialty	16
<b>ADOPT A DELEGATE / STUDENTS</b>	<b>17</b>
<b>SCIENTIFIC PROGRAMME</b>	<b>18</b>
Plenary Speakers	20
Presidents Keynote Lectures	20
Abstract Submission	21
Abstract Submission Statistics	26
Statistics by Type	26
Statistics by Country	27
Statistics by Topic	28
Statistics by Topic and Sub-topic	29
Abstract fees	34
Speaker Ready Room	34
<b>ACCREDITATION</b>	<b>35</b>
<b>POSTERS</b>	<b>36</b>
<b>COC ACTIVITIES AND MEETINGS</b>	<b>38</b>
<b>EXHIBITION</b>	<b>43</b>
Overview and Statistics	43
Key Functions in the Exhibition Area	43
Exhibiting Companies and Exhibition Floorplan	43
<b>SPONSORSHIP</b>	<b>45</b>
Overview	46
Industry-Supported Symposia	46
<b>AUSPICES AND COLLABORATIVE INSTITUTIONS</b>	<b>47</b>
Auspices	47
Collaborative Institutions	47
<b>SOCIAL EVENTS</b>	<b>48</b>
<b>SCIENTIFIC VISITS</b>	<b>49</b>
<b>TOURS</b>	<b>49</b>

## INTRODUCTION

This document is a report which summarizes all the activities associated with the IUPESM World Congress on Medical Physics & Biomedical Engineering 2018. The information in this report is intended to assist future organizing committees and to document the events of the Congress as they occurred.

The congress took place on June 3–8, 2018 in Prague in Prague Congress Centre.

In the total there were 1 744 scientists, medical workers and other specialists from all over the world. There were presented more than 700 oral presentations and more than 800 were presented via E-posters.

## HOSTING ASSOCIATIONS AND ORGANIZING COMMITTEES

**World Congress on Medical Physics and Biomedical Engineering 2018 was organised in cooperation with the International Atomic Energy Agency.**

### **International Union for Physical and Engineering Sciences in Medicine (IUPESM)**

The IUPESM represents the combined efforts of more than 40,000 medical physicists and biomedical engineers working on the physical and engineering science of medicine. Its principle objective is to contribute to the advancement of physical and engineering sciences in medicine for the benefit and wellbeing of humanity. To achieve its purpose, IUPESM engages in several activities. It organizes and coordinates the triennial World Congress for Medical Physics and Biomedical Engineering as well as organizing and/or coordinating international meetings or conferences for the IUPESM constituent organizations. Further, it establishes committees, commissions, working groups and other bodies for purposes within its mandate. Two important task groups are IUPESM's Health Technology Task Group and its Women in Medical Physics and Biomedical Engineering Task Group. It is also involved in publishing scientific journals (notably its Health and Technology Journal), newsletters, books and electronic documents to enhance progress. It is also committed to disseminating, promoting and/or developing standards of practice in the fields of medical physics and biomedical engineering to enhance the quality of health care worldwide. IUPESM also represents the interests of its members in the International Council for Science and similarly collaborates with other international scientific, professional and medical organizations with common interests.

### **International Organization for Medical Physics (IOMP)**

The International Organization for Medical Physics (IOMP), established in 1963, is the primary professional organization for medical physics. IOMP represents 86 National Members Organizations and 6 Regional Federations worldwide. IOMP is a Non-Governmental Organization (NGO) for the International Atomic Energy Agency (IAEA) and the World Health Organization (WHO). IOMP is charged with a mission to advance medical physics practice worldwide by disseminating scientific and technical information, fostering the educational and professional development of medical physics and promoting the highest quality medical services for patients. IOMP publishes the web-based Newsletter Medical Physics World and the web-based Journal Medical Physics International. Additionally, IOMP sponsors most of the medical physics journals worldwide and organizes various educational and professional events worldwide, aiming to boost the global development of the profession. IOMP is one of the founding bodies of the International Union for Physical and Engineering Sciences in Medicine (IUPESM) and co-organizes the tri-annual World Congress of Medical Physics and Biomedical Engineering, as well as the International Conference on Medical Physics.

### **International Federation of Medical and Biological Engineering (IFMBE)**

The International Federation for Medical and Biological Engineering (IFMBE) established in 1959 is primarily a federation of national and transnational societies. These professional organizations represent interests in medical and biological engineering. The IFMBE is also a Non-Governmental Organization (NGO) for the United Nations and the World Health Organization (WHO), where we are uniquely positioned to influence the delivery of health care to the world through Biomedical and Clinical Engineering. The IFMBE's objectives are scientific and technological as well as educational and literary. Within the field of medical, biological and clinical engineering IFMBE's aims are to encourage research and application of knowledge, and to disseminate information and promote collaboration. The ways in which we disseminate information include: organizing World Congresses and Regional Conferences, publishing our flagship journal Medical & Biological Engineering & Computing (MBEC), our web-based newsletter – IFMBE News, our Congress and Conference Proceedings, and books. The ways in which we promote collaborations is through networking programs, workshops and partnerships with other professional groups, e.g., Engineering World Health.

### Czech Association of Medical Physicists (CAMP)

The history of medical physics in the Czech Republic is as long as the history of using ionizing radiation, dating back to pioneering activities of František Běhounek and Rudolf Jedlička. The very first physicists were involved mainly in radiotherapy and nuclear medicine.

While the history of medical physics in the Czech Republic is quite long, the history of the Czech Association of Medical Physicists (CAMP) is dated from the April 6, 2004.

The main goals of CAMP are to represent medical physicists towards the state institutions and to support education, research and development in the field of medical physics. CAMP cooperates with national and international organizations and associations like EFOMP and IOMP. One of the main tasks of CAMP is to be a partner for the Ministry of Health (medical physicists in the Czech Republic are recognized as healthcare professionals) and for the State Office for Nuclear Safety. The current number of CAMP members is about 150 which is a number slightly lower than the total number of medical physicists in the Czech Republic (CAMP is a voluntary based association). The majority of CAMP members are involved in clinical radiotherapy, then in nuclear medicine, and there is also a constantly growing (but still minor) family of medical physicists working in diagnostic and interventional radiology.

The board of CAMP has 7 members who are elected for 4-year term during the general assembly of all members. The first president of CAMP was Libor Judas (2004–2006 and 2006–2010), the second president is Jaroslav Ptáček (2010–2014 and 2014–2018).

Since 2006 CAMP organizes its own one-and-a-half day Conferences in Medical Physics with 110 participants in 2017. Since 2013 CAMP cooperates with EFOMP in organizing European School for Medical Physics Experts in Prague with 9 editions so far and more than 300 unique participants in total. CAMP is proud to be responsible, together with the Czech Society for Biomedical Engineering and Medical Informatics, for organization of the IUPESM World Congress on Medical Physics & Biomedical Engineering 2018 in Prague.

### Czech Society for Biomedical Engineering and Medical Informatics (CSBMEMI)

The Czech Society for Biomedical Engineering and Medical Informatics is a member of the Czech Medical Association J.E. Purkyně. The Society was established in 1975 as the Society for Biomedical Engineering. To reflect widened scope of activities, its name was changed to the Society for Biomedical Engineering and Medical Informatics in 1990 and a separate Section for Biomedicine Informatics has been formed within the Society.

The Society is governed by a board of 11 members elected always for a 4-years period. Main activities include organisation of different scientific meetings (seminars, symposia, conferences) focused on BME related issues, cooperation with state authorities (e.g. Ministry of Health) on healthcare legislation and regulatory affairs, and participation on development of BME education, both on the pre-gradual and post-gradual level. As a member of the International Federation for Medical and Biological Engineering, International Medical Informatics Association, European Federation for Medical Informatics and International Society for Telemedicine and eHealth, it represents the Czech BME profession on the international scene. From its inception, the Society also runs its own scientific journal – “The Clinician and Technology Journal”. For each of those activities, separate working groups have been established within the board.

### Congress Coordinating Committee

**Chair:** Kin Yin Cheung (Hong Kong)

**Members:** Monique Frize (Canada) Slavik Tabakov (United Kingdom)  
James Goh (Singapore) Virginia Tsapaki (Greece)  
Kang Ping Lin (Chinese Taipei) + Herb Voigt (United States of America)  
Howell Round (New Zealand)

### Congress Organizing Committee

**Co-Chair:** Jaromir Cmiral (Czech Republic)

**Co-Chair:** Libor Judas (Czech Republic)

**Secretary:** Frantisek Lopot (Czech Republic)

**Secretary:** Karel Nechvil (Czech Republic)

**Members:** Jiri Hozman (Czech Republic) Martina Novakova (Czech Republic)  
Irena Koniarova (Czech Republic) Vit Richter (Czech Republic)  
Lenka Lhotska (Czech Republic) Lucie Sukupova (Czech Republic)  
Martin Mayer (Czech Republic)

### Finance Committee

**Co-Chair:** Martin Mayer (Czech Republic)

**Co-Chair:** Vit Richter (Czech Republic)

**Members:** Jan Hanousek (Czech Republic)  
Anchali Krisanachinda (Thailand)

Marc Nyssen (Belgium)  
Vaclav Poljak (Czech Republic)

### Scientific Committee

**Co-Chair:** Geoffrey Ibbott (United States of America)

**Co-Chair:** Lenka Lhotska (Czech Republic)

**Co-Chair:** Ratko Magjarevic (Croatia)

**Co-Chair:** Lucie Sukupova (Czech Republic)

**Members:** Magdalena Bazalova-Carter (Canada)  
Carmel Caruana (Malta)  
Tomas Cechak (Czech Republic)  
Paul Chang (Singapore)  
Kin Yin Cheung (Hong Kong, China)  
Jiri Chvojka (Czech Republic)  
Matej Daniel (Czech Republic)  
Marie Davidkova (Czech Republic)  
Harry Delis (IAEA)  
Pavel Dvorak (Czech Republic)  
Ludovic Ferrer (France)  
Martin Falk (Czech Republic)  
Christian Gasser (Sweden)  
Csilla Gergely (France)  
Susanna Guatelli (Australia)  
Jens Haueisen (Germany)  
Jan Havlik (Czech Republic)  
Jiri Hozman (Czech Republic)  
Marjan Hummel (Netherlands)  
Leonidas D. Iasemidis (United States of America)  
Tom Judd (United States of America)  
Peter Knoll (Austria)  
Radim Kolar (Czech Republic)  
Jana Kolarova (Czech Republic)  
Christian Kollmann (Austria)  
Irena Koniarova (Czech Republic)  
David Korpas (Czech Republic)  
Vladimir Krajca (Czech Republic)  
Jan Kremlacek (Czech Republic)  
Petr Marsalek (Czech Republic)

Deborah Van Der Merwe (IAEA)  
Karel Nechvil (Czech Republic)  
Milos Nesladek (Czech Republic)  
Pirkko Nykänen (Finland)  
Hakan Nystrom (Sweden)  
Pawel Olko (Poland)  
Leandro Pecchia (United Kingdom)  
Maria Perez (WHO)  
Vaclav Porod (Czech Republic)  
Jaroslav Ptacek (Czech Republic)  
Kevin Prise (United Kingdom)  
Ivo Provaznik (Czech Republic)  
Vladimir Rogalewicz (Czech Republic)  
Simo Saarakkala (Finland)  
Ioannis Sechopoulos (Netherlands)  
Jos Vander Sloten (Belgium)  
Milan Sonka (United States of America)  
Olga Stepankova (Czech Republic)  
Lucie Sukupova (Czech Republic)  
Krystina Tack (United States of America)  
Annalisa Trianni (Italy)  
Jiri Trnka (Czech Republic)  
Virginia Tsapaki (Greece)  
Adriana Velazquez (WHO)  
Frantisek Vlcek (Czech Republic)  
Vladimir Vondracek (Czech Republic)  
Jan Vrba (Czech Republic)  
Kevin Warwick (United Kingdom)  
Martha Zequera Diaz (Columbia)

### Program Committee

**Co-Chair:** Jaromir Cmiral (Czech Republic)

**Co-Chair:** Libor Judas (Czech Republic)

**Members:** Lenka Lhotska (Czech Republic)  
Frantisek Lopot (Czech Republic)  
Karel Nechvil (Czech Republic)

Martina Novakova (Czech Republic)  
Lucie Sukupova (Czech Republic)

### Publicity Committee

**Chair:** Martina Novakova (Czech Republic)

**Co-Chair:** Pavla Buricova (Czech Republic)

**Co-Chair:** Pavla Novakova (Czech Republic)

**Members:** Michele Hilts (Canada)  
Jeannie Hsiu Ding Wong (Malaysia)  
Akos Jobbagy (Hungary)  
Luiz Kun (United States of America)

Magdalena Stoeva (Bulgaria)  
Tae-Suk Suh (Republic of Korea)  
Jaw-lin Wang (Chinese Taipei)

### Education Committee

**Co-Chair:** Jiri Hozman (Czech Republic)

**Co-Chair:** Irena Koniarova (Czech Republic)

**Members:** Jiri Kofranek (Czech Republic)  
Vladimír Krajca (Czech Republic)

Simo Saarakkala (Finland)  
Ioannis Sechopoulos (Netherlands)

### Professional Standards Committee

**Co-Chair:** Libor Judas (Czech Republic)

**Co-Chair:** David Korpas (Czech Republic)

**Members:** John Damilakis (Greece)  
Michele Hilts (Canada)  
Jeannie Hsiu Ding Wong (Malaysia)  
Tomas Kron (Australia)  
Siew Lok Toh (Singapore)

Nicolas Pallikarakis (Greece)  
Yakov Pipman (United States of America)  
Kang Ping Lin (Chinese Taipei)  
Jaroslav Ptacek (Czech Republic)  
Christoph Trauernicht (South Africa)

### Publication Committee

**Chair:** Vladimir Marik (Czech Republic)

**Co-Chair:** Igor Lackovic (Croatia)

### International Advisory Board (BME)

**Co-Chair:** James Goh (Singapore)

**Co-Chair:** Ratko Magjarevic (Croatia)

**Members:** Guillermo Avendano C. (Chile)  
Paulo De Carvalho (Portugal)  
Jaromir Cmiral (Czech Republic)  
Fong Chin Su (Chinese Taipei)  
David Elad (Israel)  
Yubo Fan (China)  
Mário Forjaz Secca (Portugal)  
Monique Frize (Canada)  
Birgit Glasmacher (Germany)  
Peter Hunter (New Zealand)  
Ernesto Iadanza (Italy)  
Fatimah Ibrahim (Malaysia)  
Timo Jämsä (Finland)  
Akos Jobbagy (Hungary)  
Eleni Kaldoudi (TBA)  
Peter Kneppo (Czech Republic)

Shankar Krishnan (United States of America)  
Eric Laciár Leber (Argentina)  
Igor Lackovic (Croatia)  
Piotr Ladyzynski (Poland)  
Lenka Lhotska (Czech Republic)  
Nigel Lovell (Australia)  
Alan Murray (UK)  
Marc Nyssen (Belgium)  
Leandro Pecchia (UK)  
Kang Ping Lin (Chinese Taipei)  
Ichiro Sakuma (Japan)  
Maria Siebes (The Netherlands)  
Nitish Thakor (Singapore)  
+ Herbert F. Voigt (United States of America)  
Min Wang (Hong Kong)

### International Advisory Board (MP)

**Co-Chair:** Kin Yin Cheung (Hong Kong)

**Co-Chair:** Slavik Tabakov (United Kingdom)

**Members:** Laila Al Balooshi (UAE)  
Abdullah Al Hajj (KSA)  
Huda Al Naemi (Qatar)  
Rodolfo Alfonso Laguardia (Cuba)  
Supriyanto Ardjo Pawiro (Indonesia)  
Eva Bezak (Australia)  
Marco Brambila (Italy)  
David Brettle (UK)  
Arun Chougule (India)  
John Damilakis (Greece)  
Catherine Dejean (France)  
Ludovic Ferrer (France)  
Michelle Hilts (Canada)  
Jeannie Hsiu Ding Wong (Malaysia)  
Amaury Hornbeck (France)  
Geoffrey Ibbott (United States of America)  
Ahmed Ibn Seddik (Morocco)  
Taofeeq Ige (Nigeria)  
Petro Julkunen (Finland)  
Simone Kodlulovich (Brazil)

Dimitri Kostylev (Russia)  
Anchali Krisanachinda (Thailand)  
James C L Lee (Singapore)  
Melissa Martin (United States of America)  
Rebecca Nakatudde (Uganda)  
Herke Jan Noordmans (The Netherlands)  
Fridtjof Nüsslin (Germany)  
Yakov Pipman (United States of America)  
Jaroslav Ptacek (Czech Republic)  
Magdalena Rafecas (Germany)  
Madan Rehani (United States of America)  
Jose L. Rodriguez (Chile)  
Howell Round (New Zealand)  
Ferid Shannoun (UNSCEAR)  
Magdalena Stoeva (Bulgaria)  
Tae-Suk Suh (Republic of Korea)  
Lucie Sukupova (Czech Republic)  
Virginia Tsapaki (Greece)  
Graciela Velez (Argentina)  
Ulrich Wolf (Germany)

### Professional Conference Organizer

GUARANT International spol. s r.o. was the supporting agency that was responsible for the management and logistics concerning the congress.



### GUARANT International Team (PCO)

**Project Manager**

**Program Management**

**Exhibition Management**

**Sponsorship Management**

**Registration Management**

**Accommodation Management**

**AV Equipment Management**

**Social Media Management, Social Events, Staff**

**Scientific Visits Management**

Renata Somolova  
Martina Srncova  
Pavlina Kratka  
Petr Brincil  
Andrea Machova  
Anna Klackova  
Ales Basik  
Kristyna Somolova  
Renata Malkova



## VENUE

### Setup and Floorplans

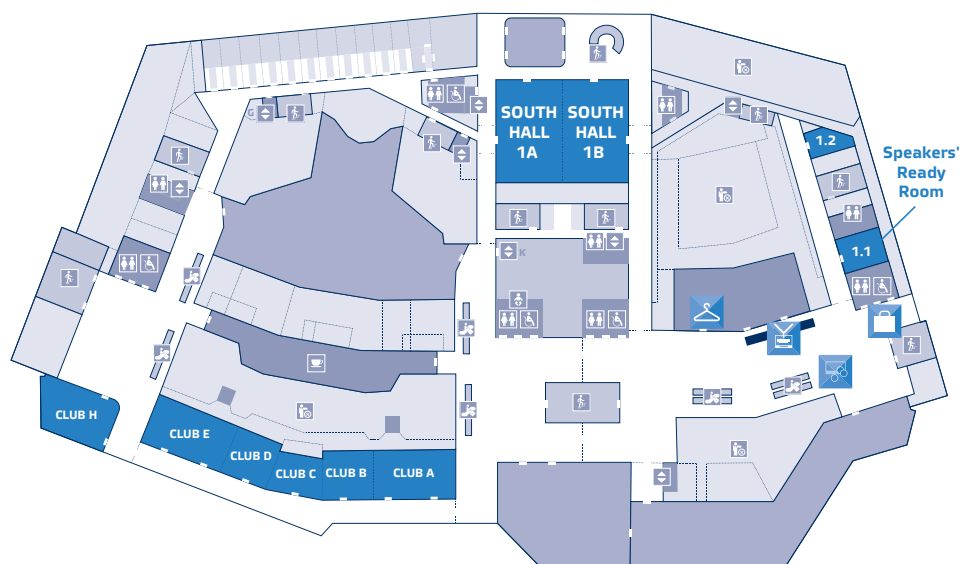
The IUPESM World Congress 2018 took place in the Prague Congress Centre. The Prague Congress Centre is located in Prague 4 district near the Vyšehrad Castle. The accessibility by public transport is very good, because the metro station Vyšehrad is next to the building of the Prague Congress Centre.

The Prague Congress Centre is the venue for many other congresses and conferences and the cooperation with their staff is for the Conference Organizers easier.

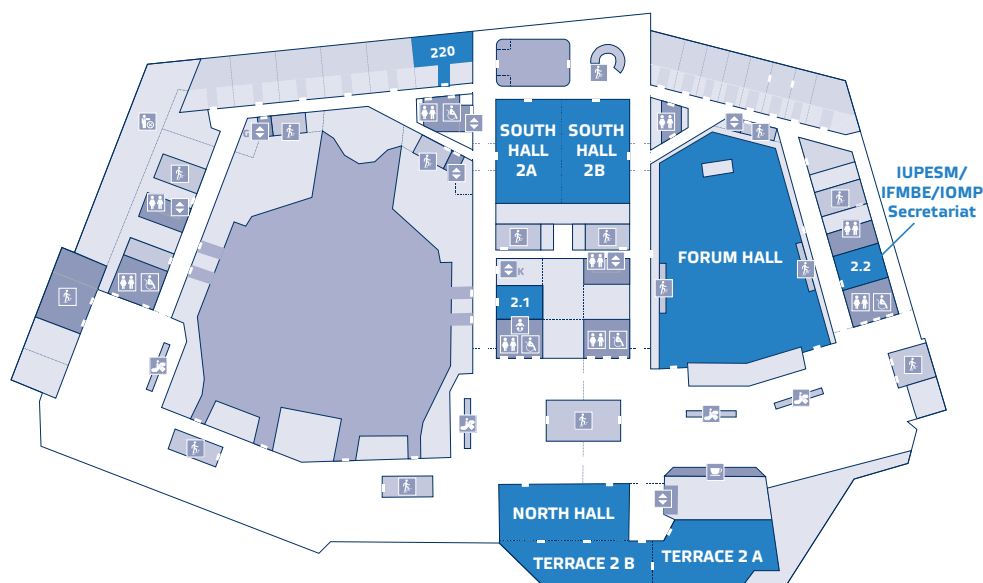
The building of the Prague Congress Centre offers more than 70 representative halls and rooms with the capacity from 20 to 2 764 seats. There is the variability of the organization of the rooms.

Please find the venue floor plans below.

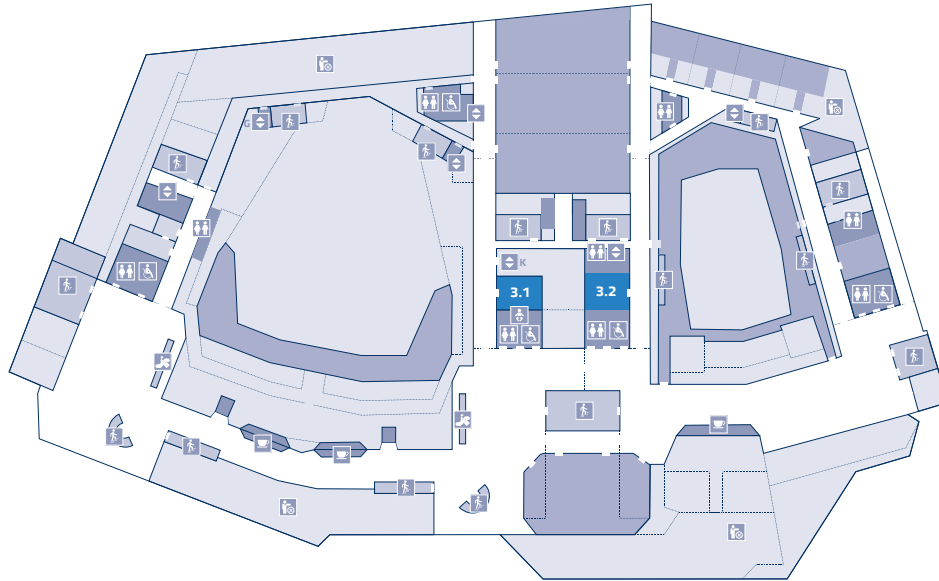
### First Floor



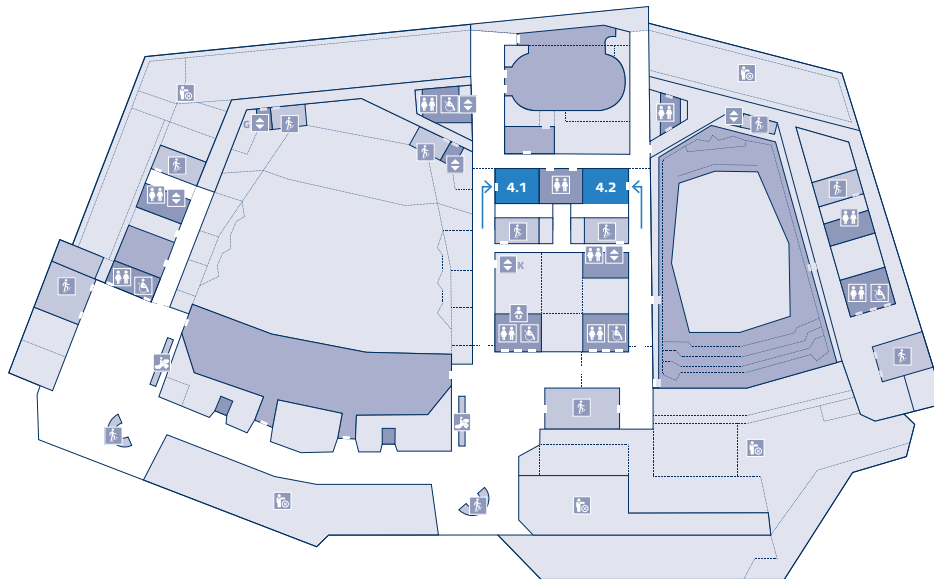
### Second Floor



### Third Floor



### Fourth Floor



#### Wireless Internet

Free wireless internet was provided for the attendees during the whole congress throughout the building of the Prague Congress Centre.

#### Signage

The signage was provided by the Prague Congress Centre as e-signage and a few boards with signage were used for special section notice and also some posters and roll ups and banner to the main congress halls.

## REGISTRATION

Registration Counters, the Information Desk and the Delegate Bags booth were located on the 1 floor of the Prague Congress Centre.

### Registration Setup

The Registration area was divided into 5 workstations.

### Info Desk

The Information Desk counter was the information centre of the congress. Here we provided information to attendees about the scientific and social programme, scientific visits, the congress venue, city of Prague, tours, taxi services, public transportation or restaurants nearby. The maps of Prague were also provided.

### Exhibitor registration

Exhibitors could pick up their badges and other congress materials at this counter.

### Pre-registration

There were 3 counters for the pre-registered delegates who had pre-registered for the congress organized by alphabet.

### On-site registration

The counter was set up for registration of the delegates who wanted to register on site or delegates wanting to purchase additional tickets.

### Cash Desk

All onsite registered delegates or delegates who wanted to defray additional tickets were asked to proceed the payment at the Cash Desk which was set up in front of the registration counters.

### Delegate Bags Distributions

All delegates received a bag voucher and were asked to pick their congress back at this booth up. The Delegate bag booth was located next the Registration area.

2m	6m			2m
Info desk / Exhibitors	Pre-registration A–K	Pre-registration L–R	Pre-registration S–Z	Onsite Registration
	Cash Desk	Cash Desk		

### Registration hours

Sunday, June 3	12:00–19:00
Monday, June 4	07:00–18:00
Tuesday, June 5	07:00–18:00
Wednesday, June 6	07:30–18:00
Thursday, June 7	07:30–17:00
Friday, June 8	07:30–12:00

## Registration Fees

### Delegate Registration Fees

	EARLY REGISTRATION	REGULAR REGISTRATION	LATE / ON SITE REGISTRATION
	until January 31, 2018	from February 1 – May 15, 2018	from May 16, 2018
MEMBER *	EUR 490	EUR 660	EUR 770
NON – MEMBER	EUR 590	EUR 770	EUR 880
PARTICIPANT – LOWER MIDDLE INCOME COUNTRIES **	EUR 400	EUR 450	EUR 500
PARTICIPANT – LOW INCOME COUNTRIES ***			
STUDENT ****	EUR 240	EUR 310	EUR 360
ONE DAY REGISTRATION	EUR 270	EUR 320	EUR 370

\* Member is defined as an individual who is a current member of an affiliated society of IOMP or IFMBE.

\*\* Angola, Armenia, Bangladesh, Bhutan, Bolivia, Cabo Verde, Cambodia, Cameroon, Congo Rep., Cote D'Ivoire, Djibouti, Egypt, El Salvador, Ghana, Guatemala, Honduras, India, Indonesia, Kenya, Kosovo, Kyrgyz Rep., Lao PDR, Lesotho, Mauritania, Indonesia, Moldova, Myanmar, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Philippines, Samoa, Sao Tome and Principe, Solomon Islands, Sri Lanka, Sudan, Swaziland, Syrian Arabe Rep., Tajikistan, Timor-Leste, Tonga, Tunisia, Ukraine, Uzbekistan, Vanuatu, Vietnam, Yemen Rep., Zambia

\*\*\* Afghanistan, Benin, Central African Republic, Chad, Comoros, Congo, Eritrea, Ethiopia, Gambia, Guinea, Guinera Bissau, Haiti, Korea, Dem. People's Rep., Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Somalia, South Sudan, Tanzania, Togo, Uganda, Zimbabwe

\*\*\*\* Student is defined as individual whose age is under 30 years, full-time student proved by the university and signed by the supervisor

### The Full Delegate Registration included:

- Access to all Scientific and Education Sessions
- Access to Exhibit Area
- Onsite Programme
- Congress Proceedings
- Welcome Cocktail June 3, 2018
- Coffee Breaks
- Congress Materials
- Free Ticket for Municipal Transport (June 3–8, 2018)
- 2 abstract submissions

### One Day Registration Fee included:

- Access to all Scientific Programme & Continuing Education Sessions (except any specially ticketed sessions) on day of attendance
- Access to Exhibit Area on day of attendance
- Onsite Programme
- Congress Proceedings
- Coffee Breaks on day of attendance
- Congress Materials

### List of registration fees

<b>Members</b>	
Early Bird – deadline January 31, 2018	272
Regular – 1. 2. – 30. 4. 2018	161
Adopt a Delegate winner	2
Late and On site – from 1. 5. 2018	16
<b>Non Members</b>	
Early	209
Regular	173
Late and On site	10
<b>Students</b>	
Early	207
Regular	141
Late and On site	2
IFMBE/IOMP Beneficiaries	37
<b>Participants from low income countries</b>	
Early	3
Regular	1
Late and On site	0
<b>Participants from lower middle income countries</b>	
Early	8
Regular	7
Late and On site	0
<b>One day</b>	
Early	10
Regular	23
Late and On site	21
<b>Waved registration</b>	
Invited guests	180
VIP guests	7
Local Students (only access without congress bag)	253
<b>Scientific Visits</b>	
SV2	23
SV5	7
SV6	7
SV7	11
<b>Accompanying person</b>	
Early	4
Regular	3
Free	8
Late and On site	2
<b>Registration Fees Subtotal</b>	<b>1744</b>
<b>incl acc persons</b>	<b>1761</b>

## Registration Statistics

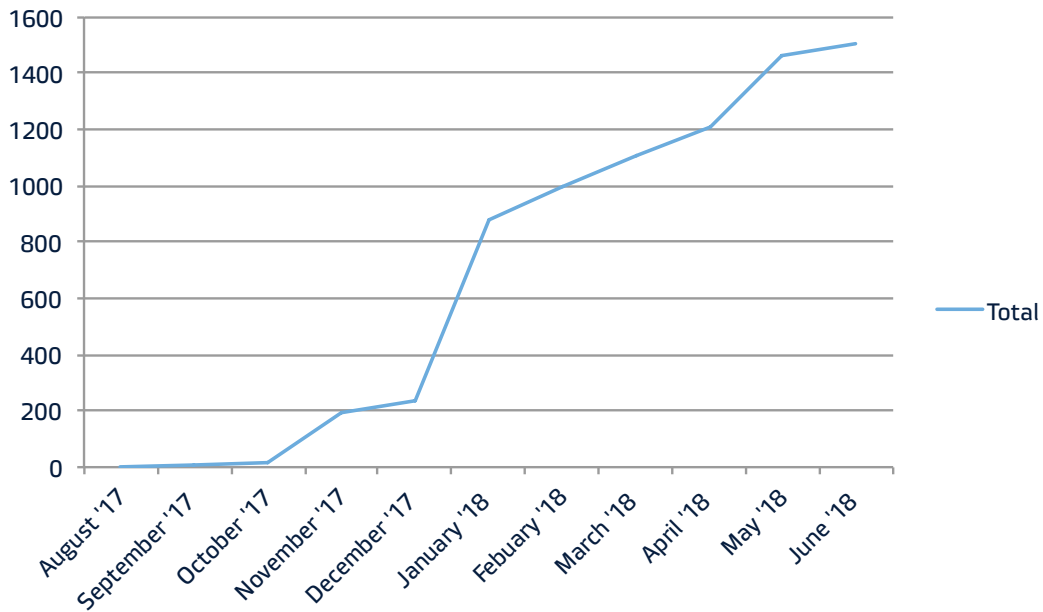
### 1761

## Registration Flow

### Registration by months

Month	Number of participants	Total
August '17	1	1
September '17	8	9
October '17	9	18
November '17	179	197
December '17	39	236
January '18	646	882
February '18	117	999
March '18	107	1106
April '18	100	1206
May '18	309	1515
June '18	246	1761

## Registrations in time

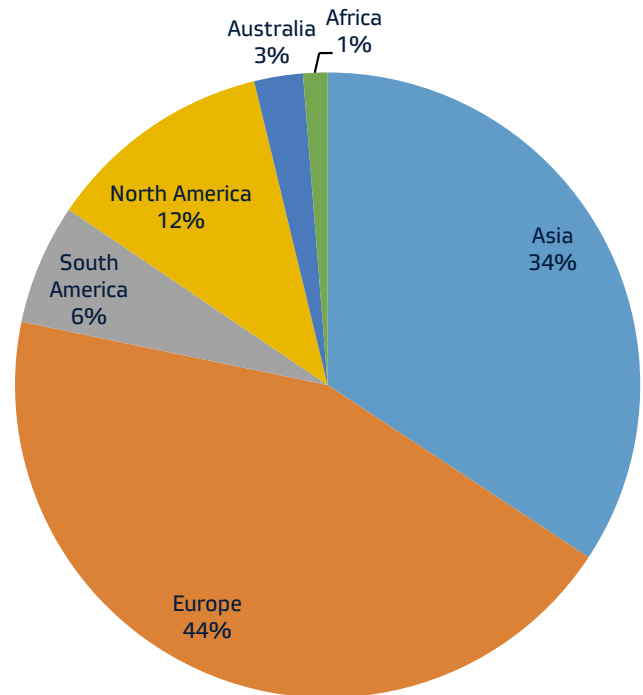


### Registration by Country

Country	Number of participants	Country	Number of participants
Argentina	9	Malaysia	12
Australia	31	Malta	1
Austria	30	Mexico	34
Bangladesh	3	Moldova	1
Belgium	10	Monaco	1
Benin	1	Mongolia	4
Bosnia and Herzegovina	4	Mozambique	1
Brazil	54	Netherlands	23
Bulgaria	6	New Zealand	7
Canada	39	Nigeria	4
Chile	2	Norway	5
China	70	Oman	1
Chinese Taipei	56	Pakistan	1
Colombia	19	Peru	2
Croatia	13	Philippines	9
Cuba	5	Poland	33
Cyprus	1	Portugal	11
Czech Republic	372	Qatar	1
Denmark	4	Romania	4
Ecuador	7	Russian Federation	10
Estonia	7	Saudi Arabia	1
Ethiopia	4	Singapore	29
Finland	33	Slovak Republic	60
France	16	Slovenia	5
Georgia	2	South Africa	3
Germany	59	Spain	23
Ghana	2	Sri Lanka	1
Greece	16	Sweden	27
Hong Kong	20	Switzerland	7
Hungary	9	Thailand	17
Iceland	1	Trinidad and Tobago	1
India	9	Tunisia	1
Indonesia	11	Turkey	10
Iran	10	Uganda	1
Ireland	6	Ukraine	3
Israel	4	United Arab Emirates	2
Italy	53	United Kingdom	58
Japan	159	United States	99
Korea (the Republic of)	67	Uruguay	1
Latvia	12	Venezuela	1
Lebanon	2	Viet Nam	1
Lithuania	2	Zimbabwe	1
Macao	4	<b>Total:</b>	<b>1761</b>

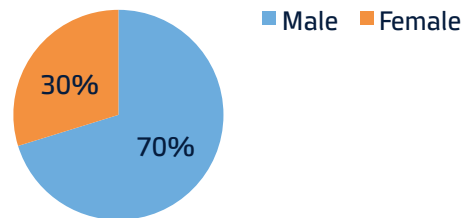
### Registration by Continent

Continent	Number of participants
Asia	517
Europe	916
South America	94
North America	177
Australia	38
Africa	19
<b>Total:</b>	<b>1761</b>



### Registration by Sex

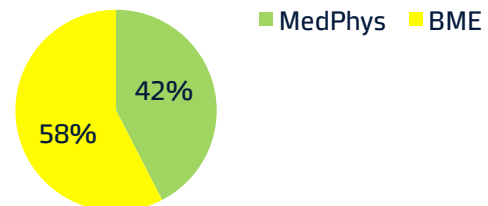
Male	x	Female
1212	x	549



### Registration by Specialty

(Only those who filled in the form, without students and acc. persons)

MedPhys	x	BME
640	x	868





## ADOPT A DELEGATE / STUDENTS

The IUPESM 2018 World Congress introduced the 'Adopt a Delegate/Student' initiative, giving prospective delegates from a developed world setting the opportunity to adopt or part finance the registration and accommodation costs of a peer from an emerging economy.

Delegates could be supported by other delegates by donating any amount they feel appropriate during their own [online registration](#) process.

To encourage co-ownership of the project, adopted (sponsored) delegates will carry financial responsibility for return travel to the Congress, while the donated money will be used to help offset costs for registration and/or accommodation.

The IUPESM 2018 World Congress recognized that most people from emerging countries don't have the financial resources to attend meetings outside their country.

With this initiative the IUPESM 2018 World Congress hoped to provide additional opportunities for those researchers and physicians to attend IUPESM 2018 World Congress, exchange information and set up a network with researchers and physicians from all over the world attempting to help the sponsored delegate's research both now and in the future.

Those individuals who applied for support from the Adopt A Delegate / Student Program submitted cover letter to the WC 2018 Congress Organizing Committee explaining the need for funding assistance.

The financial support was only for travel expenses related to the Congress and registration.







THURSDAY, June 7, 2018														THURSDAY, June 7, 2018													
	FORUM HALL 2 <sup>nd</sup> floor	SOUTH HALL 1B 1 <sup>st</sup> floor	CLUB A 1 <sup>st</sup> floor	CLUB B 1 <sup>st</sup> floor	CLUB C 1 <sup>st</sup> floor	CLUB D 1 <sup>st</sup> floor	CLUB E 1 <sup>st</sup> floor	CLUB H 1 <sup>st</sup> floor	NORTH HALL 2 <sup>nd</sup> floor	TERRACE 2A 2 <sup>nd</sup> floor	TERRACE 2B 2 <sup>nd</sup> floor	SOUTH HALL 2A 2 <sup>nd</sup> floor	SOUTH HALL 2B 2 <sup>nd</sup> floor	Room 4.1	Room 4.2												
08:00–08:30				IOMP SCHOOL – e-Learning Experience: Building Educational Modules in Medical Physics and Engineering with Moodle VLE	IOMP SCHOOL – Session on Medical Physics e-Encyclopaedia and Dictionary Update			Educational Lecture MP (08:00–08:45)			IOMP SCHOOL – Partnering with developing neighbours, medical physics volunteering in SE Asia		IOMP SCHOOL – IOMP-UNISCEAR Workshop on Data Collection “Improved Global Information on Medical Exposures and Occupational Exposures in Medicine”			08:00–08:30											
08:30–09:00	MT9 – Biosignals Processing	MT18 – Clinical Engineering						Break (08:45–09:00)								08:30–09:00											
09:00–09:30				IOMP SCHOOL – Exercises in Strategic Medical Physics Leadership – Case Studies from the Trenches						MT14 – Neuroengineering, Neural Systems							09:00–09:30										
09:30–10:00											MT20 – Dosimetry and Radiation Protection							09:30–10:00									
10:00–10:30												MT19 – Radiation Oncology Physics and Systems						10:00–10:30									
10:30–11:00	Networking Break															10:30–11:00											
11:00–11:30			IFMBE Awardees Keynote Lectures (09:30–12:00)																								
11:30–12:00	MT9 – Biosignals Processing	MT18 – Clinical Engineering		Educational Lecture MP (11:00–11:45)	SS Medical Informatics			Educational Lecture MP (11:30–11:45)																			
12:00–12:30				Break (11:45–12:00)																							
12:30–13:00				MT23 – Nuclear Medicine and Molecular Imaging																							
13:00–13:30	Lunch Break															12:30–13:00											
13:30–14:00																13:00–13:30											
14:00–14:30				SS-02 IFMBE Asian-Pacific Research Network Scientific Paper Presentations												13:30–14:00											
14:30–15:00	MT9 – Biosignals Processing	MT18 – Clinical Engineering	MT15 – Biomaterials, Cellular and Tissue Engineering, Artificial Organs	Educational Lecture MP (14:00–14:45)	Educational Lecture MP (14:00–14:45)	Educational Lecture MP (14:00–14:45)										14:00–14:30											
15:00–15:30				Break (14:45–15:00)	Break (14:45–15:00)	Break (14:45–15:00)										14:30–15:00											
15:30–16:00				MT20 – Dosimetry and Radiation Protection	MT19 – Radiation Oncology Physics and Systems											15:00–15:30											
16:00–16:30																15:30–16:00											
16:30–17:00	MT9 – Biosignals Processing	MT18 – Clinical Engineering	SS-15 The Proposed IFMBE African Working Group	MT19 – Radiation Oncology Physics and Systems	MT20 – Dosimetry and Radiation Protection	MT19 – Radiation Oncology Physics and Systems										16:00–16:30											
17:00–17:30																16:30–17:00											
17:30–18:00																17:00–17:30											
18:00–18:30																17:30–18:00											
18:30–19:00																18:00–18:30											

FRIDAY, June 8, 2018								
	FORUM HALL 2 <sup>nd</sup> floor	CLUB A 1 <sup>st</sup> floor	CLUB B 1 <sup>st</sup> floor	CLUB C 1 <sup>st</sup> floor	CLUB E 1 <sup>st</sup> floor	CLUB H 1 <sup>st</sup> floor	TERRACE 2A 2 <sup>nd</sup> floor	
08:00–08:30			Educational Lecture MP					
08:30–09:00			Break (08:45–09:00)	IOMP SCHOOL – MRI-Guided Radiation Therapy	Educational Lecture MP (08:45–09:00)		IOMP SCHOOL – Meet the Editors	
09:00–09:30	MT18 – Clinical Engineering	MT19 – Radiation Oncology Physics and Systems						
09:30–10:00				MT21 – Advanced Technologies in Cancer Research and Treatment				
10:00–10:30						MT20 – Dosimetry and Radiation Protection		
10:30–10:45								
10:45–11:30								
11:30–12:00								
12:00–12:30								
12:30–13:00	Closing Ceremony (10:45–13:00)							

## Plenary Speakers

**Uwe Oelfke** (United Kingdom)

**Title:** Improving clinical outcomes of adaptive cancer therapies with radiation: Strategies, technologies and challenges

**Russell Ritenour** (United States of America)

**Title:** Physicists and Engineer’s Interaction with Physicians in Medical Imaging

## Presidents Keynote Lectures

**Kin Yin Cheung**

Medical Physics & Research Department, Hong Kong Sanatorium & Hospital, Hong Kong, China

**Title:** Innovations in medicine- the role of medical physicists and biomedical engineers

**Slavik Tabakov**

Med. Eng. Phys, IOMP and King’s College London, London, United Kingdom

**Title:** Global distribution of medical physicists, their growth over the past 50 years and future development

**James Goh**

President, International Federation on Medical and Biological Engineering

Department of Biomedical Engineering, Faculty of Engineering, National University of Singapore

Department of Orthopaedic Surgery, Yong Loo Lin School of Medicine, National University of Singapore

**Title:** Engineering Innovations for Future Healthcare

### Abstract Submission

The total number of abstracts submitted to the Congress was 1899. The original submission deadline was on November 15, 2018 at 23:59 PST however the COC has decided to extend the deadline to January 31, 2018 23:59 PST. The extension was announced on the Congress website as well as via email newsletter.

### Main Topics and Sub-Topics

#### 1. Diagnostic Imaging

- 1.1. Computed tomography
- 1.2. Cone-beam CT
- 1.3. Radiography
- 1.4. Breast imaging
- 1.5. Interventional procedures
- 1.6. New imaging techniques (X-ray phase contrast, spectral imaging, monochromatic imaging...)
- 1.7. Magnetic resonance imaging and spectroscopy
- 1.8. Optical imaging
- 1.9. Ultrasound imaging and optical coherence tomography
- 1.10. Optical imaging and microscopy
- 1.11. Molecular imaging (SPECT, PET, optical)
- 1.12. Multimodality imaging
- 1.13. Quality assurance/control (QA/QC)
- 1.14. Detector technology
- 1.15. Image quality measures
- 1.16. Optimization
- 1.17. Contrast agents
- 1.18. Preclinical imaging
- 1.19. Imaging bio-impedance and bioelectric sources
- 1.20. Biomarker imaging
- 1.21. Other

#### 2. Image Processing

- 2.01. Image reconstruction
- 2.02. Multi-modality data handling (hybrid systems, off-line fusion)
- 2.03. Quantitative image analysis
- 2.04. Statistical image analysis (parametric and non-parametric tests and mapping)
- 2.05. Computer-aided diagnosis (CAD)
- 2.06. Digital phantoms and Monte Carlo methods
- 2.07. Machine learning (neural networks, deep learning,...)
- 2.08. Image processing, display and visualization
- 2.09. Image processing, segmentation and registration
- 2.10. Functional neuroimaging and neuronavigation
- 2.11. Radiomics
- 2.12. Other

#### 3. Information Technology in Healthcare

- 3.01. Data standards
- 3.02. Data and information models and representations, standards, interoperability
- 3.03. Systems for quality assurance and dose tracking
- 3.04. Artificial intelligence
- 3.05. Teleradiology
- 3.06. Big data challenges and applications in healthcare
- 3.07. Decision support systems, and tools in healthcare
- 3.08. Electronic patient/medical/health records
- 3.09. Information quality, privacy, security, and ethics
- 3.10. Integrated healthcare workflow, systems, applications
- 3.11. Personal health systems, patient-centered healthcare services and applications
- 3.12. Usability and user experience issues with health IT
- 3.13. Health IT ecosystems
- 3.14. Other

#### **4. Modelling and Simulation**

- 4.01. Biological effects of ionizing radiation
- 4.02. Biological effects of non-ionizing radiation
- 4.03. Modelling in treatment planning
- 4.04. Modelling for diagnostic imaging
- 4.05. Detector modelling
- 4.06. Modelling for radiation protection applications
- 4.07. Physiological modelling
- 4.08. Computational biology in BME
- 4.09. Mimicking phantoms
- 4.10. Bioinformatics
- 4.11. Biological modelling
- 4.12. Hemodynamics
- 4.13. Neurodynamics
- 4.14. Transport and physiological modelling
- 4.15. Ultrasound simulation
- 4.16. Network and systems biology
- 4.17. Other

#### **5. BME and MP Education, Training and Professional Development**

- 5.01. Education and training in MP and BME
- 5.02. Continuous professional development in MP and BME
- 5.03. Accreditation and certification
- 5.04. Regional/national experiences of E&T
- 5.05. Teaching healthcare professionals
- 5.06. Technology enhanced education
- 5.07. Career development in MP and BME

#### **6. Patient Safety**

- 6.01. Reporting systems
- 6.02. Accidents, incidents, and risk management
- 6.03. Skin injuries
- 6.04. Nuclear and radiological emergencies
- 6.05. Emergency preparedness
- 6.06. Remote dose monitoring and risk and dose optimization
- 6.07. Diagnostic reference levels
- 6.08. Caregivers
- 6.09. Safety of non-ionizing radiation
- 6.10. Human factors engineering for medical device and system design
- 6.11. Patient safety, medical errors, and adverse event prevention related to health technologies
- 6.12. Protocol optimization

#### **7. Accreditation and Certification**

- 7.01. Hospital / Clinical accreditation
- 7.02. Quality systems/quality assurance
- 7.03. Clinical audits
- 7.04. Future perspectives (new areas requiring standardization (accreditation/certification))
- 7.05. Role of regulatory bodies
- 7.06. Standards
- 7.07. International healthcare accreditation
- 7.08. National accreditation schemes

#### **8. Health Technology Assessment**

- 8.01. Technology Management Programs
- 8.02. Equipment Management Systems
- 8.03. Health Technology Assessment and Economics
- 8.04. Productivity and Benchmarking
- 8.05. Cost Effective Technologies for Developing Countries
- 8.06. Clinical trials

**9. Biosignals Processing**

- 9.01. Linear Dynamic Analysis of Biomedical Signals
- 9.02. Nonlinear Dynamic Analysis of Biomedical Signals
- 9.03. Time-frequency Analysis
- 9.04. Connectivity and Causality
- 9.05. Signal Pattern Classification
- 9.06. EEG, MEG, ECG, CTG, EMG, MEG, ERG Signal Processing

**10. Biomechanics, Rehabilitation and Prosthetics**

- 10.01. Orthopaedic Biomechanics
- 10.02. Cardiovascular Biomechanics
- 10.03. Dental Biomechanics
- 10.04. Accidental Biomechanics
- 10.05. Rehabilitation Engineering and Robotics
- 10.06. Human Movement Biomechanics
- 10.07. Biofluids
- 10.08. Tissue Biomechanics
- 10.09. Cellular and Molecular Mechanics

**11. Minimum Invasive Surgery, Robotics, Image Guided Therapies, Endoscopy**

- 11.01. Minimal Invasive Surgery and Instruments
- 11.02. Image-Guided Devices and Systems
- 11.03. Endoscopy and Endoscopic Interventions
- 11.04. Virtual Reality in Medicine
- 11.05. Robots and Manipulators in Therapy

**12. Diagnostic and Therapeutic Instrumentation**

- 12.01. Anaesthesia Systems
- 12.02. Injection and Infusion Systems
- 12.03. Bioimpedance
- 12.04. Cardiovascular Systems
- 12.05. Neuromodulation Systems
- 12.06. Dialysis and Apheresis Systems
- 12.07. Pulmonary Systems
- 12.08. Sleep Systems
- 12.09. Therapeutic Systems

**13. Micro- and Nanosystems, Active Implants, Biosensors**

- 13.01. Biosensors
- 13.02. Nanotheranostics
- 13.03. Body Sensor Networks
- 13.04. Active Implants
- 13.05. Lab-on-chip/Biochips

**14. Neuroengineering, Neural Systems**

- 14.01. Brain Physiology and Modelling
- 14.02. Blood Brain Barrier & Pharmacokinetics
- 14.03. Motor Learning and Neural Control
- 14.04. Brain Computer/Machine Interfaces
- 14.05. NeuroProstheses
- 14.06. Transcranial Magnetic and Electric Stimulation
- 14.07. Deep Brain Stimulation
- 14.08. Epilepsy Monitoring
- 14.09. Neurological Disorders

- 15. Biomaterials, Cellular and Tissue Engineering, Artificial Organs**
- 15.01. Nanotechnology in Regenerative Medicine and Tissue Engineering
  - 15.02. Artificial Skin, Bones, Joints, Teeth and Related Biomaterials
  - 15.03. Cardiovascular Biomaterials, Artificial Heart
  - 15.04. Cardiac Neuromodulation Assist Devices
  - 15.05. Brain Neuromodulation Assist Devices
  - 15.06. Drug Delivery Systems
  - 15.07. Current Advances in Stem Cell Biology
  - 15.08. Neurocultures
- 16. Assistive Technologies**
- 16.01. Telemedicine, Distant monitoring, Tele-homecare, and Domotics
  - 16.02. Internet of Everything
  - 16.03. Cybersecurity
- 17. Biological Effects of Electromagnetic Fields**
- 17.01. Biological Effects of Non-Ionizing Radiation
  - 17.02. Modelling
  - 17.03. Measurement and Assessment
  - 17.04. Therapeutic Applications
- 18. Clinical Engineering**
- 18.01. Health Technology Management
  - 18.02. Quality, Productivity and Benchmarking
  - 18.03. Telemedicine in Developing Countries
  - 18.04. Information and Communication Technologies and Clinical Engineering (CE-IT)
  - 18.05. International Standards and Regulations of medical devices
  - 18.06. Innovation and Design of Surgical and Medical Devices
  - 18.07. Disaster Preparedness for Clinical Engineers
  - 18.08. Clinical Process Analysis and Optimization
  - 18.09. Medical Devices Incident Analysis and Management
  - 18.10. Forensic Clinical Engineering and Risk Management
  - 18.11. Clinical Engineering Certification, Training and Education
  - 18.12. Decision Support Systems and Clinical Engineering
  - 18.13. National Societies and International Cooperation
  - 18.14. Clinical Engineering Success Stories
- 19. Radiation Oncology Physics and Systems**
- 19.01. Brachytherapy
  - 19.02. VMAT: Planning and Delivery/IGRT
  - 19.03. VMAT: Verification and QA
  - 19.04. IMRT: Planning and Delivery/IGRT
  - 19.05. IMRT: Verification and QA
  - 19.06. MRI/Linac
  - 19.07. Motion compensation: Imaging and Delivery
  - 19.08. Stereotactic Radiosurgery
  - 19.09. Treatment planning
  - 19.10. Dose calculations
  - 19.11. Dose delivery verification



**20. Dosimetry and Radiation Protection**

- 20.01. Dosimetry in therapy (experiments, calculations)
- 20.02. Dosimetry in imaging (experiments, calculations)
- 20.03. Dosimetric techniques and phantoms
- 20.04. Mathematical modelling of radiation protection
- 20.05. Shielding design
- 20.06. Micro- and nanodosimetry
- 20.07. Dosimetry and calibration
- 20.08. Radiation protection optimization
- 20.09. Risk and dose optimization
- 20.10. Occupational dosimetry
- 20.11. Nuclear and radiological emergencies
- 20.12. Other

**21. Advanced Technologies in Cancer Research and Treatment**

- 21.01. Adaptive radiation therapy (ART)
- 21.02. Image-guided radiation therapy (IGRT)
- 21.03. Real time IGRT
- 21.04. High intensity focused ultrasound (HIFU) therapy
- 21.05. Target ablation by using microwave, radiofrequency, cryotherapy, etc.
- 21.06. Nanotechnology in radiation therapy and imaging
- 21.07. Small animal research technologies
- 21.08. Hyperthermia therapy
- 21.09. Laser therapy
- 21.10. New particle accelerators for radiation therapy
- 21.11. Light ion radiotherapy
- 21.12. Robotics and mechatronics in cancer diagnostics and therapeutics
- 21.13. Other

**22. Biological Effects of Ionizing Radiation**

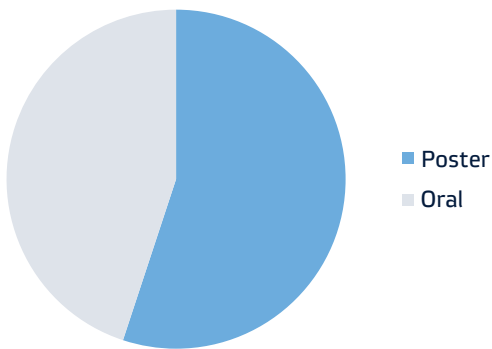
- 22.01. DNA damage and repair in cells and tissues
- 22.02. Off target radiation effects – cytoplasmic damage, bystander effect, genomic instability
- 22.03. Tumour heterogeneity and response to radiation
- 22.04. Cell radiosensitivity/radioresistance and its targeted manipulations
- 22.05. Dose hypofractionation and hyperfractionation
- 22.06. Protons and high-LET radiations: implications for cancer treatment
- 22.07. Low dose effects
- 22.08. Radiomics and systems radiobiology
- 22.09. Biodosimetry
- 22.10. Clinical radiobiology
- 22.11. Other

**23. Nuclear Medicine and Molecular Imaging**

- 23.01. Nuclear medicine instrumentation – present and future designs
- 23.02. Computed tomography in nuclear medicine
- 23.03. Magnetic resonance in nuclear medicine
- 23.04. SPECT, SPECT/CT imaging
- 23.05. PET/CT imaging
- 23.06. PET/MR imaging
- 23.07. Image reconstruction and correction strategies
- 23.08. Image registration and segmentation
- 23.09. Image quantification
- 23.10. Tracer kinetic modelling
- 23.11. Nuclear medicine dosimetry
- 23.12. Monte Carlo modelling in nuclear medicine
- 23.13. Dosimetry in nuclear medicine (experiments, calculations)

<b>Abstracts of Educational Sessions:</b>	53
<b>Special sessions abstracts:</b>	172
<b>Abstracts submitted by plenary speakers:</b>	3
<b>Abstracts of keynote lectures:</b>	26
<b>Standard abstracts:</b>	1540 (734 oral presentations, 806 posters)
<b>Number of cancelled abstracts:</b>	126
<b>Number of rejected abstracts:</b>	10

### Abstract Submission Statistics Statistics by Type



### Statistics by Country

Country	Number of Abstracts	Country	Number of Abstracts
Algeria	1	Malaysia	15
Argentina	20	Malta	3
Australia	35	Mexico	34
Austria	25	Moldova, Republic of	1
Bangladesh	16	Monaco	1
Belgium	4	Mongolia	1
Bosnia and Herzegovina	9	Mozambique	1
Brazil	120	Nepal	3
Bulgaria	5	Netherlands	11
Cambodia	1	New Zealand	4
Cameroon	1	Nigeria	16
Canada	36	Norway	7
Chile	2	Oman	1
China	81	Pakistan	2
Chinese Taipei	70	Paraguay	3
Colombia	19	Peru	2
Croatia	14	Philippines	12
Cuba	9	Poland	47
Cyprus	1	Portugal	14
Czech Republic	171	Republic of Korea	63
Denmark	3	Romania	7
Ecuador	14	Russian Federation	22
Egypt	2	Saudi Arabia	6
Estonia	6	Singapore	22
Finland	25	Slovakia	7
France	14	Slovenia	5
Georgia	2	South Africa	5
Germany	71	Spain	28
Ghana	11	Sri Lanka	2
Greece	32	Sudan	3
Hong Kong	3	Sweden	28
Hungary	10	Switzerland	4
Iceland	1	Thailand	19
India	34	Trinidad and Tobago	1
Indonesia	12	Tunisia	1
Iran	60	Turkey	29
Ireland	3	Uganda	1
Israel	3	Ukraine	5
Italy	81	United Arab Emirates	2
Japan	154	United Kingdom	60
Kenya	2	United States	86
Latvia	11	Uruguay	2
Lebanon	5	Venezuela	1
Lithuania	3	Viet Nam	2
Macao	1	Zimbabwe	1
		<b>Total</b>	<b>1794</b>

### Statistics by Topic

Topic	Number of Abstracts
1. Diagnostic Imaging	111
2. Image Processing	119
3. Information Technology in Healthcare	72
4. Modelling and Simulation	143
5. BME and MP Education, Training and Professional Development	58
6. Patient Safety	39
7. Accreditation and Certification	10
8. Health Technology Assessment	27
9. Biosignals Processing	145
10. Biomechanics, Rehabilitation and Prosthetics	115
11. Minimum Invasive Surgery, Robotics, Image Guided Therapies, Endoscopy	10
12. Diagnostic and Therapeutic Instrumentation	60
13. Micro- and Nanosystems, Active Implants, Biosensors	48
14. Neuroengineering, Neural Systems	47
15. Biomaterials, Cellular and Tissue Engineering, Artificial Organs	68
16. Assistive Technologies	10
17. Biological Effects of Electromagnetic Fields	17
18. Clinical Engineering	69
19. Radiation Oncology Physics and Systems	150
20. Dosimetry and Radiation Protection	140
21. Advanced Technologies in Cancer Research and Treatment	48
22. Biological Effects of Ionizing Radiation	29
23. Nuclear Medicine and Molecular Imaging	31



### Statistics by Topic and Sub-topic

Topic and Sub-topic	Number of Abstracts
<b>1. Diagnostic Imaging</b>	<b>111</b>
01.01. Computed tomography	22
01.02. Cone-beam CT	3
01.03. Radiography	1
01.04. Breast imaging	8
01.06. New imaging techniques (X-ray phase contrast, spectral imaging, monochromatic imaging...)	12
01.07. Magnetic resonance imaging and spectroscopy	12
01.08. Optical imaging	11
01.09. Ultrasound imaging and optical coherence tomography	9
01.10. Optical imaging and microscopy	2
01.11. Molecular imaging (SPECT, PET, optical)	2
01.12. Multimodality imaging	3
01.13. Quality assurance/control (QA/QC)	5
01.15. Image quality measures	6
01.18. Preclinical imaging	5
01.19. Imaging bio-impedance and bioelectric sources	5
01.21. Other	2
01.22. Keynote lecture	2
<b>2. Image Processing</b>	<b>119</b>
02.01. Image reconstruction	15
02.02. Multi-modality data handling (hybrid systems, off-line fusion)	1
02.03. Quantitative image analysis	18
02.04. Statistical image analysis (parametric and non-parametric tests and mapping)	2
02.05. Computer-aided diagnosis (CAD)	12
02.07. Machine learning (neural networks, deep learning, ...)	20
02.08. Image processing, display and visualization	5
02.09. Image processing, segmentation and registration	28
02.10. Functional neuroimaging and neuronavigation	4
02.11. Radiomics	12
02.13. Keynote lecture	2
<b>3. Information Technology in Healthcare</b>	<b>72</b>
03.02. Data and information models and representations, standards, interoperability	1
03.03. Systems for quality assurance and dose tracking	1
03.04. Artificial intelligence	10
03.06. Big data challenges and applications in healthcare	1
03.07. Decision support systems, and tools in healthcare	19
03.08. Electronic patient/medical/health records	7
03.09. Information quality, privacy, security, and ethics	3
03.10. Integrated healthcare workflow, systems, applications	3
03.11. Personal health systems, patient-centered healthcare services and applications	14
03.12. Usability and user experience issues with health IT	5
03.14. Other	6
03.15. Keynote lecture	2

<b>4. Modelling and Simulation</b>	<b>143</b>
04.01. Biological effects of ionizing radiation	8
04.02. Biological effects of non-ionizing radiation	1
04.03. Modelling in treatment planning	17
04.04. Modelling for diagnostic imaging	12
04.05. Detector modelling	5
04.06. Modelling for radiation protection applications	4
04.07. Physiological modelling	25
04.08. Computational biology in BME	2
04.09. Mimicking phantoms	5
04.10. Bioinformatics	2
04.11. Biological modelling	10
04.12. Hemodynamics	22
04.13. Neurodynamics	1
04.14. Transport and physiological modelling	7
04.15. Ultrasound simulation	3
04.17. Other	17
04.18. Keynote lecture	2
<b>5. BME and MP Education, Training and Professional Development</b>	<b>58</b>
05.01. Education and training in MP and BME	29
05.02. Continuous professional development in MP and BME	3
05.03. Accreditation and certification	2
05.04. Regional/national experiences of E&T	8
05.05. Teaching healthcare professionals	2
05.06. Technology enhanced education	8
05.07. Career development in MP and BME	4
05.08. Keynote lecture	2
<b>6. Patient Safety</b>	<b>39</b>
06.01. Reporting systems	2
06.02. Accidents, incidents, and risk management	5
06.03. Skin injuries	1
06.05. Emergency preparedness	1
06.06. Remote dose monitoring and risk and dose optimization	1
06.07. Diagnostic reference levels	3
06.08. Caregivers	1
06.09. Safety of non-ionizing radiation	1
06.10. Human factors engineering for medical device and system design	4
06.11. Patient safety, medical errors, and adverse event prevention related to health technologies	11
06.12. Protocol Optimization	7
06.13. Keynote lecture	2
<b>7. Accreditation and Certification</b>	<b>10</b>
07.02. Quality systems/quality assurance	1
07.03. Clinical audits	2
07.04. Future perspectives (new areas requiring standardization (accreditation/certification))	2
07.05. Role of regulatory bodies	1
07.06. Standards	2
07.09. Keynote lecture	2

<b>8. Health Technology Assessment</b>	<b>27</b>
08.01. Technology management programs	3
08.02. Equipment management systems	1
08.03. Health technology assessment and economics	17
08.04. Productivity and benchmarking	1
08.05. Cost effective technologies for developing countries	3
08.07. Keynote lecture	2
<b>9. Biosignals Processing</b>	<b>145</b>
09.01. Linear dynamic analysis of biomedical signals	11
09.02. Nonlinear dynamic analysis of biomedical signals	23
09.03. Time-frequency analysis	13
09.04. Connectivity and causality	8
09.05. Signal pattern classification	27
09.06. EEG, MEG, ECG, CTG, EMG, MEG, ERG signal processing	61
09.07. Keynote lecture	2
<b>10. Biomechanics, Rehabilitation and Prosthetics</b>	<b>115</b>
10.01. Orthopaedic biomechanics	14
10.02. Cardiovascular biomechanics	4
10.03. Dental biomechanics	5
10.05. Rehabilitation engineering and robotics	40
10.06. Human movement biomechanics	35
10.07. Biofluids	1
10.08. Tissue biomechanics	7
10.09. Cellular and molecular mechanics	9
<b>11. Minimum Invasive Surgery, Robotics, Image Guided Therapies, Endoscopy</b>	<b>10</b>
11.01. Minimal invasive surgery and instruments	4
11.02. Image-guided devices and systems	5
11.05. Robots and manipulators in therapy	1
<b>12. Diagnostic and Therapeutic Instrumentation</b>	<b>60</b>
12.02. Injection and infusion systems	1
12.03. Bioimpedance	14
12.04. Cardiovascular systems	21
12.05. Neuromodulation systems	4
12.06. Dialysis and apheresis systems	2
12.07. Pulmonary systems	4
12.08. Sleep systems	2
12.09. Therapeutic systems	11
12.10. Keynote lecture	1
<b>13. Micro- and Nanosystems, Active Implants, Biosensors</b>	<b>48</b>
13.01. Biosensors	16
13.02. Nanotheranostics	10
13.03. Body sensor networks	3
13.04. Active implants	8
13.05. Lab-on-chip/biochips	10
13.06. Keynote lecture	1

<b>14. Neuroengineering, Neural Systems</b>	<b>47</b>
14.01. Brain physiology and modelling	5
14.02. Blood brain barrier & pharmacokinetics	2
14.03. Motor learning and neural control	2
14.04. Brain computer/machine interfaces	6
14.05. NeuroProstheses	2
14.06. Transcranial magnetic and electric stimulation	9
14.07. Deep brain stimulation	7
14.09. Neurological disorders	13
14.10. Keynote lecture	1
<b>15. Biomaterials, Cellular and Tissue Engineering, Artificial Organs</b>	<b>68</b>
15.01. Nanotechnology in regenerative medicine and tissue engineering	19
15.02. Artificial skin, bones, joints, teeth and related biomaterials	21
15.03. Cardiovascular biomaterials, artificial heart	12
15.06. Drug delivery systems	10
15.07. Current advances in stem cell biology	5
15.08. Neurocultures	1
<b>16. Assistive Technologies</b>	<b>10</b>
16.01. Telemedicine, distant monitoring, tele-homecare, and domotics	8
16.02. Internet of everything	2
<b>17. Biological Effects of Electromagnetic Fields</b>	<b>17</b>
17.01. Biological effects of non-ionizing radiation	2
17.02. Modelling	5
17.03. Measurement and assessment	7
17.04. Therapeutic applications	3
<b>18. Clinical Engineering</b>	<b>69</b>
18.01. Health Technology Management	14
18.02. Quality, productivity and benchmarking	3
18.03. Telemedicine in Developing Countries	2
18.04. Information and communication technologies and clinical engineering (CE-IT)	2
18.05. International standards and regulations of medical devices	3
18.06. Innovation and design of surgical and medical devices	11
18.07. Disaster preparedness for clinical engineers	2
18.08. Clinical process analysis and optimization	5
18.09. Medical devices incident analysis and management	6
18.10. Forensic clinical engineering and risk management	1
18.11. Clinical engineering certification, training and education	7
18.12. Decision support systems and clinical engineering	6
18.13. National societies and international cooperation	2
18.14. Clinical engineering success stories	4
18.15. Keynote lecture	1



<b>19. Radiation Oncology Physics and Systems</b>	<b>150</b>
19.01. Brachytherapy	13
19.02. VMAT: Planning and delivery/IGRT	7
19.03. VMAT: Verification and QA	5
19.04. IMRT: Planning and delivery/IGRT	4
19.05. IMRT: Verification and QA	3
19.06. MRI/Linac	6
19.07. Motion compensation: Imaging and delivery	14
19.08. Stereotactic radiosurgery	12
19.09. Treatment planning	31
19.10. Dose calculations	22
19.11. Dose delivery verification	32
19.12. Keynote lecture	1
<b>20. Dosimetry and Radiation Protection</b>	<b>140</b>
20.01. Dosimetry in therapy (experiments, calculations)	38
20.02. Dosimetry in imaging (experiments, calculations)	13
20.03. Dosimetric techniques and phantoms	25
20.04. Mathematical modelling of radiation protection	1
20.05. Shielding design	7
20.06. Micro- and nanodosimetry	3
20.07. Dosimetry and calibration	22
20.08. Radiation protection optimization	9
20.09. Risk and dose optimization	7
20.10. Occupational dosimetry	8
20.12. Other	6
20.13. Keynote lecture	1
<b>21. Advanced Technologies in Cancer Research and Treatment</b>	<b>48</b>
21.01. Adaptive radiation therapy (ART)	2
21.02. Image-guided radiation therapy (IGRT)	3
21.03. Real time IGRT	1
21.04. High intensity focused ultrasound (HIFU) therapy	1
21.05. Target ablation by using microwave, radiofrequency, cryotherapy, etc.	2
21.06. Nanotechnology in radiation therapy and imaging	6
21.07. Small animal research technologies	4
21.08. Hyperthermia therapy	5
21.09. Laser therapy	1
21.10. New particle accelerators for radiation therapy	1
21.11. Light ion radiotherapy	8
21.12. Robotics and mechatronics in cancer diagnostics and therapeutics	1
21.13. Other	12
21.14. Keynote lecture	1

<b>22. Biological Effects of Ionizing Radiation</b>	<b>29</b>
22.01. DNA damage and repair in cells and tissues	2
22.03. Tumour heterogeneity and response to radiation	1
22.04. Cell radiosensitivity/radioresistance and its targeted manipulations	7
22.05. Dose hypofractionation and hyperfractionation	1
22.06. Protons and high-LET radiations: implications for cancer treatment	2
22.07. Low dose effects	3
22.08. Radiomics and systems radiobiology	1
22.09. Biodosimetry	2
22.10. Clinical radiobiology	5
22.11. Other	5
<b>23. Nuclear Medicine and Molecular Imaging</b>	<b>31</b>
23.01. Nuclear medicine instrumentation – present and future designs	4
23.03. Magnetic resonance in nuclear medicine	2
23.04. SPECT, SPECT/CT imaging	4
23.05. PET/CT imaging	1
23.06. PET/MR imaging	1
23.07. Image reconstruction and correction strategies	2
23.09. Image quantification	4
23.10. Tracer kinetic modelling	1
23.11. Nuclear medicine dosimetry	4
23.12. Monte Carlo modelling in nuclear medicine	2
23.13. Dosimetry in nuclear medicine (experiments, calculations)	5
23.14. Keynote lecture	1

**Abstract fees** (Registration fee included submission of 2 abstracts, the fee was for each additional submitted abstract)

Registration Fee	Fee Price	No of Participants
Abstract fee	120,00 EUR	129

### Speaker Ready Room

#### Speaker Ready Room hours

Sunday, June 3	12:00–19:00
Monday, June 4	07:00–19:00
Tuesday, June 5	07:00–19:00
Wednesday, June 6	07:00–19:00
Thursday, June 7	07:00–19:00
Friday, June 8	07:00–13:30

## ACCREDITATION

### EBAMP Accreditation

EBAMP accredits the World Congress on Medical Physics and Biomedical Engineering. The event has been judged according to the EBAMP protocol and it has been accredited by EBAMP as CPD event for Medical Physicists at EQF Level 7 and awarded 38 CPD credit points.

### MPCEC credits

The IUPESM 2018 World Congress Continuing Education Program has applied to be CAMPEP accredited for up to 78,5 MPCEC credits. To obtain MPCEC credits, participants should complete the online evaluation survey.

### Certificates

The certificates of attendance were available to download after the Congress. Each delegate received an email with instructions for downloading.



## POSTERS

All e-posters were available for viewing at e-poster stations located on the first and second floor in the Prague Congress Centre. All e-posters were available throughout the whole duration of the congress.

The electronic posters are displayed on the Congress website [www.iupesm2018.org](http://www.iupesm2018.org).

Free discussions between authors of posters and audience took place during the congress on the first floor. Posters on the second floor were used for viewing only.

All e-posters were available for viewing and downloading on the Congress website in the Section Scientific Programme.

### Schedule of free discussions at E-poster Area 1

Topic	Day	Time
<b>MT 1</b> Diagnostic Imaging	Tuesday June 5, 2018	10:30–12:00
	Tuesday June 5, 2018	15:30–17:00
	Wednesday June 6, 2018	08:30–11:00
	Thursday June 7, 2018	14:00–18:00
<b>MT 2</b> Image Processing	Monday June 4, 2018	10:30–11:00
	Monday June 4, 2018	12:30–14:00
	Tuesday June 5, 2018	10:45–14:00
	Wednesday June 6, 2018	09:00–11:00
	Wednesday June 6, 2018	13:00–18:00
<b>MT 3</b> Information Technology in Healthcare	Tuesday June 5, 2018	15:30–18:00
	Wednesday June 6, 2018	09:00–18:00
<b>MT 4</b> Modelling and Simulation	Wednesday June 6, 2018	15:30–18:00
	Thursday June 7, 2018	09:00–18:00
<b>MT 5</b> BME and MP Education, Training and Professional Development	Tuesday June 5, 2018	09:00–18:00
<b>MT 6</b> Patient Safety	Tuesday June 5, 2018	09:00–18:00
<b>MT 7</b> Accreditation and Certification	Monday June 4, 2018	09:00–12:30
<b>MT 8</b> Health Technology Assessment	Wednesday June 6, 2018	10:30–14:00
<b>MT 9</b> (sub-topic 9.01.–9.05) Biosignals Processing	Monday June 4, 2018	09:00–18:00
<b>MT 9</b> (sub-topic 9.06) Biosignals Processing	Tuesday June 5, 2018	09:00–18:00
<b>MT 10</b> Biomechanics, Rehabilitation and Prosthetics	Monday June 4, 2018	09:00–18:00
	Tuesday June 5, 2018	09:00–18:00
<b>MT 11</b> Minimum Invasive Surgery, Robotics, Image Guided Therapies, Endoscopy	Wednesday June 6, 2018	14:45–18:00
<b>MT 12</b> Diagnostic and Therapeutic Instrumentation	Wednesday June 6, 2018	09:00–11:00
	Wednesday June 6, 2018	15:30–18:00
<b>MT 13</b> Micro- and Nanosystems, Active Implants, Biosensors	Monday June 4, 2018	09:00–14:00
	Tuesday June 5, 2018	09:00–18:00
	Wednesday June 6, 2018	09:00–18:00

Topic	Day	Time
<b>MT 14</b> Neuroengineering, Neural Systems	Wednesday June 6, 2018	09:00–18:00
	Tuesday June 5, 2018	15:30–18:00
<b>MT 15</b> Biomaterials, Cellular and Tissue Engineering, Artificial Organs	Tuesday June 5, 2018	09:00–18:00
	Wednesday June 6, 2018	09:00–18:00
	Thursday June 7, 2018	09:00–14:00
<b>MT 16</b> Assistive Technologies	Thursday June 7, 2018	14:00–16:00
<b>MT 17</b> Biological Effects of Electromagnetic Fields	Monday June 4, 2018	14:00–16:00
<b>MT 18</b> Clinical Engineering	Tuesday June 5, 2018	10:30–16:00
	Wednesday June 6, 2018	09:00–18:00
<b>MT 19</b> Radiation Oncology Physics and Systems	Tuesday June 5, 2018	12:30–18:00
	Wednesday June 6, 2018	12:30–16:00
	Thursday June 7, 2018	09:00–18:00
<b>MT 20</b> Dosimetry and Radiation Protection	Monday June 4, 2018	12:30–18:00
	Tuesday June 5, 2018	09:00–18:00
	Wednesday June 6, 2018	14:00–18:00
	Thursday June 7, 2018	09:00–18:00
<b>MT 21</b> Advanced Technologies in Cancer Research and Treatment	Wednesday June 6, 2018	09:00–18:00
	Thursday June 7, 2018	09:00–18:00
<b>MT 22</b> Biological Effects of Ionizing Radiation	Tuesday June 5, 2018	09:00–18:00
<b>MT 23</b> Nuclear Medicine and Molecular Imaging	Wednesday June 6, 2018	09:00–18:00



## COC ACTIVITIES AND MEETINGS

### 1<sup>st</sup> Meeting of COC – October 2012

### 2<sup>nd</sup> Meeting of COC – February 2013

### 3<sup>rd</sup> Meeting of COC – November 2013

### 4<sup>th</sup> Meeting of COC – May 2014

### 5<sup>th</sup> Meeting of COC – October 2014

### 6<sup>th</sup> Meeting of COC – November 2014

### 7<sup>th</sup> Meeting of COC – March 3, 2015

### 8<sup>th</sup> Meeting of COC – June 23, 2015

### 9<sup>th</sup> Meeting of COC – October 2015

### 10<sup>th</sup> Meeting of COC – December 16, 2015

### 11<sup>th</sup> Meeting of COC – January 21, 2016

- Finalisation of 3 documents:
  - Main Topics Chairs: Duties and Responsibilities (L. Lhotska)
  - Point of view, commentary to Contract (F. Lopot)
  - 1<sup>st</sup> Report for IUPESM (all members)

### 12<sup>th</sup> Meeting of COC – February 25, 2016

- Authorization of L. Lhotska for representation in the Medicon Conference in Cyprus and to dealings with CCC IUPESM and AC IFMBE
- Preparation of materials for promotion for Cyprus conference (R. Somolova for L. Lhotska)
- Terminology and hierarchy of main topics = tracks discussed
- Discussed co-chairs and their roles
- Discussed key words for abstracts submission for inclusion into individual tracks
- New leaflets with the same order of topics as on the website

### 13<sup>th</sup> Meeting of COC – March 21, 2016

- Report of L. Lhotska about meetings with representatives of IUPESM and IFMBE in Cyprus
- Status of occupation local and international main topics co-chairs
- Finalisation of commentaries to the Contract
- Responsibilities and rights of FC members
- Items of Budget checking
- Task schedule checking (L. Judas, J. Cmiral)
- Preparation of one page leaflet with main topics for advertisement in journals (GI)
- Preparation of document with tasks for each member of COC incl. deadlines (L. Judas)

### 14<sup>th</sup> Meeting of COC – April 28, 2016

- Tasks checking
  - New main topics for MF – 2 new topics (L. Judas)
  - Finalisation of local MTCC (L. Lhotska)
  - Finalisation of local MTCC for MF – deadline May 15 (L. Sukupova)
  - MZ Biomaterials – deadline May 15 (M. Novakova)
- Information about updated budget
- New prices of hotel near the PCC in the budget
- On base of actual prices of hotel Corinthia Towers and Holiday Inn (R. Somolova – GI)
- Information about sponsorship plans and deadlines
- Checking tasks schedule and congress preparation
- New items added – communication with sponsors and preparation of sponsorship brochure
- Web updating continuously (GI on base of information of J. Cmiral and L. Judas)
- No registration fees for invited speakers – max 30 persons – update the budget
- Promotion plan
- List of journals for congress promotion (M. Novákova)
- Checking prices of advertisement (GI)
- Update of COC structure
- Others
- All meetings memo will be distributed also to GI – R. Somolova

### 15<sup>th</sup> Meeting of COC – June 29, 2016

- Main point Contract with IUPESM (draft contract 6)

#### 16<sup>th</sup> Meeting of COC – October 18, 2016

- Tasks checking
- Updating of task schedule
- Table with tasks of each COC member with deadline ready and distributed (L. Judas)
- Status of Main topics chairs and keynote speakers
- Keynote speakers – program leadership – no fee. No fee for the congress dinner
- 30 keynote speakers, 42 MTC (2 x 21. One local and one international), 30 guests and committee members – list of all these persons will be sent to GI (L. Lhotska)
- Final version of the Contract with IUPESM
- Signed and will be sent to IUPESM (F Lopot)
- Updating Budget – will be prepared by GI – R. Somolova
- Others
- Information about the congress for academy field will be prepared (Lhotska/Sukupova)
- Brochure for partner's first draft – GI will send to M. Novakova

#### 17<sup>th</sup> Meeting of COC – December 2016

- Payment for the Congress Dinner
- Budget Update and Questions
- Prospectus for Commercial Activities
- Congress Promotion
- Tasks for further Meeting

#### 18<sup>th</sup> Meeting of COC – January 10

- Budget
- CCC requests
- Status of MT Chairs and Co-Chairs
- Financial Committee
- Scientific Committee
- Other committees
- Others

#### 19<sup>th</sup> Meeting of COC – February 23

- Deadlines for abstracts
- Checking the new Budget
- Nomination of committees according to the Contract
- Call for abstracts content
- Other questions discussed

#### 20<sup>th</sup> Meeting of COC – March 23

- Full papers
- Revised deadlines for Springer
- Evaluation of abstracts and full papers
- Proposals of EC and PSC Chairs
- Leaflets for national societies
- Credit points for congress
- Student definition in the registration fees
- Others

#### 21<sup>st</sup> Meeting of COC – April 27

- Nomination of members of Education Committees
- Educational programme
- Call for abstracts
- Commentary of CCC president
- Other questions from PCO
- \*\*Final checking of the Budget

#### 22<sup>nd</sup> Meeting of COC – May 25

- Welcome cocktail
- Sponsorship status and progress
- Educational programme
- Subtopics proposals
- System for abstracts evaluation
- System for full papers – Springer
- Report about promotion activities of congress
- Professional Standards Committees
- Call for Abstracts – finalizing
- Social media – responsible person
- Nomination letters, photos of member of committees
- Others

#### 23<sup>rd</sup> Meeting of COC – June 8

- The only topic – **Sponsorship**
- Report of the new sponsorship manager from PCO

#### 24<sup>th</sup> Meeting of COC – June 16

- The only topic – **promotion of the congress**
- Updated database
- Database of universities
- Advertisement
- Grant from city of Prague
- Congress webpage
- Informative leaflets
- First announcement

#### 25<sup>th</sup> Meeting of COC – June 22

- Publication Committee chair – schedule and deadlines
- abstracts – new deadlines
- Final version of Call for abstracts
- Final version of Special Sessions
- checking nomination letters
- Schedule of Continuing Education programme
- Proposals of Scientific visits – venues, fees
- Others

#### 26<sup>th</sup> Meeting of COC – August 31, 2017

- Checking activities from the last meeting
- Call for abstracts and Registration form checking
- Global Schedule for activities of IFMBE, IOMP and IUPESM
- Report about actual status of sponsorship
- Promotion status and future activities in this field
- Final schedule of Scientific Visits incl. prices
- Changes in the Congress Budget and actual status
- Opening Ceremony from Monday morning to Sunday afternoon
- Various

#### 27<sup>th</sup> Meeting of COC – September 26

- Checking activities from the last meeting
- Discussion about proposal of rooms for the congress and small meeting rooms
- Time of the exhibition
- Promotion in South America – paid promotion
- Report about received abstracts and number of registrations
- Information about system for full papers and opening of the Springer system
- Other questions discussed



### 28<sup>th</sup> Meeting of COC – October 26

- Checking activities from the last meeting
- Sponsorship and Exhibition, promotion status and further steps
- Education programme – proposal and discussion
- Congress halls and meeting rooms for IUPESM, IFMBE and IONPO meetings and activities
- Springer – information about system and full papers submission
- Others

### 29<sup>th</sup> Meeting of COC – November 30

- Checking activities from the last meeting
- Special session proposals
- Proposals for accompanied activities and events
- Actual status of Educational programme and accommodation to the congress halls
- Early Career Award – request IAMBE – discussion
- Final checking of the Budget

### 30<sup>th</sup> Meeting of COC – December 19

- Checking activities from the last meeting
- Report about development in the sponsorship
- Information about negotiations with IAEA
- Information about negotiations with IUPAP
- Information about WHO patronage
- Report about the number of received abstracts
- Negotiations about the new prolonged deadline for abstract submission
- Information about evaluation of abstracts
- Schedule of preparation of the scientific programme in January
- Various

### 31<sup>st</sup> Meeting of COC – February 1

- Checking activities from the last meeting
- The report about the number of received abstracts
- The report about the number of registered delegates
- New version of the congress budget in case of less assumed sponsors and exhibitors
- Information about CCC additional requirements
- Information about WHO patronage and their request
- Negotiations about displaying additional logos at the web pages
- Negotiations about new request of IAMBE for meeting rooms on Tuesday, June 4
- Negotiations about meetings and events of IAEA
- Discussion of the catering proposal submit by LINET during the scientific visit
- Checking the build of the programme at a Glance
- Discussion about time schedule to build detailed scientific programme
- Preliminary options for entertainment during the Congress Dinner at Žofín Palace
- Various

### 32<sup>nd</sup> Meeting of COC – February 22

- Checking activities from the last meeting
- The report about the number of full papers
- The report about the state of evaluations
- The report about the number of registered delegates
- Discussion schedule of tasks
- Various

### 33<sup>rd</sup> Meeting of COC – March 22

- The report about sponsoring activities, participation at ECR 2018
- Checking activities from the last meeting
- The report about the number of full papers
- The report about the number of registered delegates
- The introduction of updated budget
- Information about Book of Abstracts in electronic version
- Discussion about nuclear questions and relationships between COC, Guarant Int. and CCC
- The Report about process of “a adopt delegates/student” - received amount will be divided between two participants and will be used for the registration fee
- Discussion about Opening Ceremony
- Determination of particular types of badges
- Invitation letters for guests of congress (rector of Czech Technical University in Prague, Mayor of Prague, etc.)
- Various

### 34<sup>th</sup> Meeting of COC – April 19

- Checking activities from the last meeting
- Information about the scientific programme
- Report about preparation of full-papers
- Report about the number of registered delegates
- Report about the congress budget
- Information about accommodation
- Information about the dislocation of the IUPESM /IFMBE / IOMP Meetings
- Preparation of the press conference – date, time, moderator
- Preparation of the Opening Ceremony – schedule, music blocks, plenary lectures etc.
- Congress materials for participants
- Comments of CCC to the Report COC
- Letters /request for auspices of MHMP, ČLS JEP, SÚJB and ČVUT
- Discussion about moving 3-4 lectures to business meeting IAEA in Holiday Inn
- Discussion about the CCC request for free registration
- Various

### 35<sup>th</sup> Meeting of COC – May 10

- Checking activities from the last meeting
- Report about the number of registered delegates
- Report about the congress budget
- Progress in the preparation of the scientific programme
- Progress in the preparation of education program
- Report about the scientific visits
- Schedule and slides for the Opening Ceremony
- Opening Ceremony set up and CCC, seating, reservations, set up on the stage, music blocks
- Preliminary schedule of the Closing Ceremony, preparation of slides
- Preparation of the Press Conference, Press release, moderator
- Various

## EXHIBITION

### Overview and Statistics

The Exhibition was located on the first and second floor of the Prague Congress Centre.

### Exhibition opening hours

Sunday, June 3, 2018	12:00–19:30
Monday, June 4, 2018	09:00–17:30
Tuesday, June 5, 2018	09:00–17:30
Wednesday, June 6, 2018	09:00–17:30
Thursday, June 7, 2018	09:00–17:30

### Key Functions in the Exhibition Area

#### Welcome Cocktail

The Exhibition area was officially opened with the Welcome Cocktail taking place on Sunday, June 3. This was a great opportunity to start the exhibition and to mediate the interaction between exhibitors and delegates.

During the Welcome Cocktail the catering service served beverages and prepared a few antipasti stations.

#### Coffee Breaks

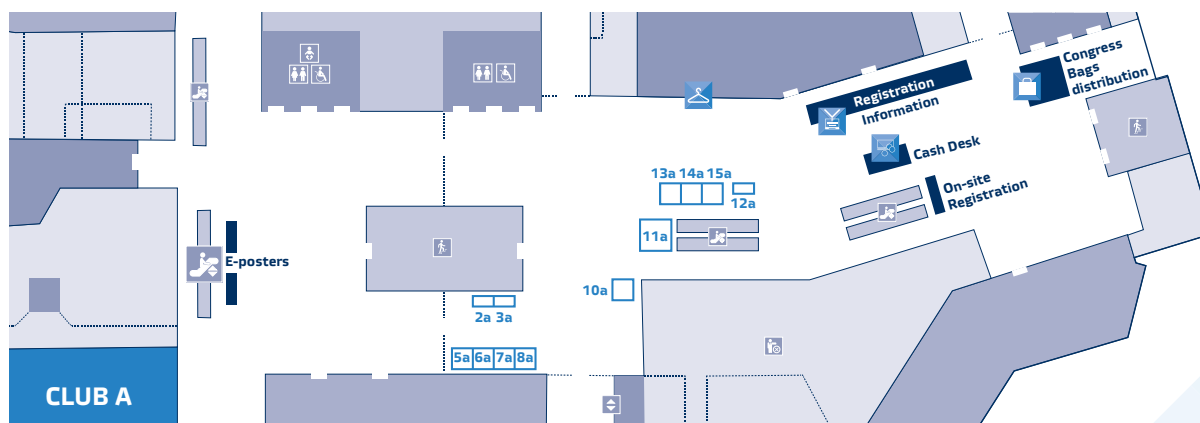
Coffee, tea, beverages and snacks were served in the Exhibition area during the morning and afternoon coffee breaks.

Monday, June 4	10:30–11:00	15:30–16:00
Tuesday, June 5	10:30–11:00	15:30–16:00
Wednesday, June 6	10:30–11:00	15:30–16:00
Thursday, June 7	10:30–11:00	15:30–16:00
Friday, June 8	10:30–10:45	

### Exhibiting Companies and Exhibition Floorplan

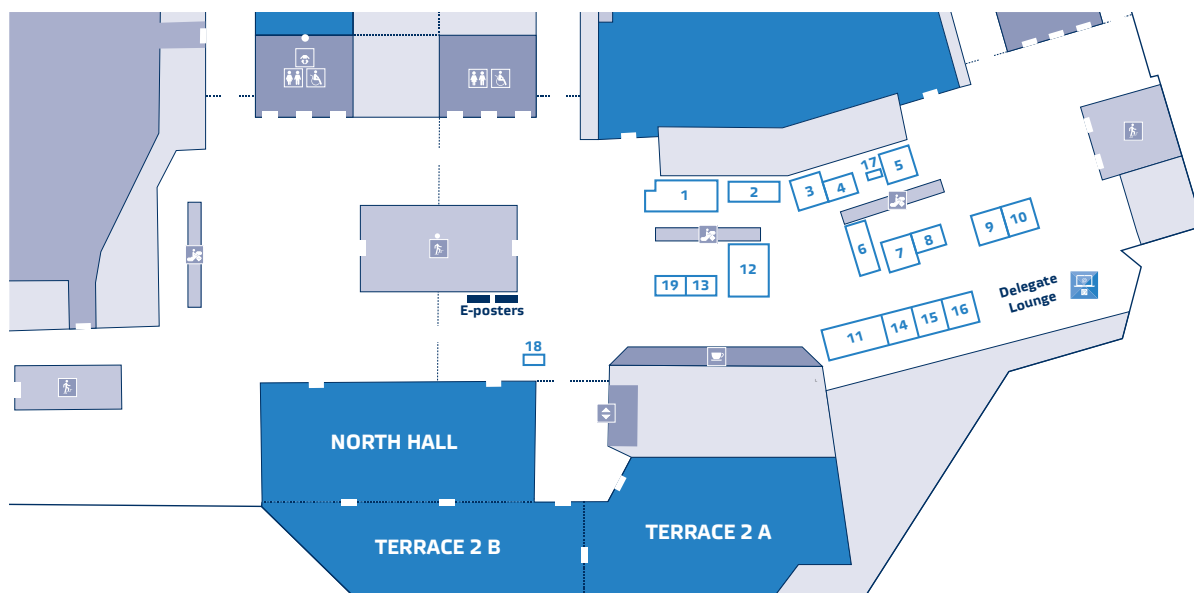
#### List of Exhibitors (First Floor)

- 2a Institute of Physics and Engineering in Medicine (IPEM)
- 3a European Society of Radiology (ESR)
- 5a WC 2024 candidate Mexico
- 6a WC 2024 candidate Cartagena de Indias Convention Bureau: ABIOIN – ACOFIMPRO
- 7a WC 2024 candidate Argentina
- 8a WC 2024 candidate JSMP(Japan Society of Medical Physics) & JSMBE (Japanese Society for Medical and Biological Engineering)
- 10a WC 2021 Singapore
- 11a WC 2024 candidate Adelaide Convention Bureau, Australia
- 12a Springer
- 13a International Organization for Medical Physics IOMP
- 14a International Federation for Medical and Biomedical Engineering IFMBE
- 15a International Union for Physical and Engineering Sciences in Medicine IUPESM



### List of Exhibitors (Second Floor)

- 1 Varian
- 2 STANDARD IMAGING
- 3 Sun Nuclear Corporation
- 4 ScandiDos
- 5 ECRI Institute
- 6 RaySearch Laboratories
- 7 IBA Dosimetry GmbH
- 8 MINIRAD
- 9–10 LINET
- 11 PTW-Freiburg
- 12 ELEKTA
- 13 MICROPOS MEDICAL
- 14 XStrahl Ltd.
- 15 CIRS Inc.
- 16 Canberra-Packard
- 17 Project H2020 INSPIRE – INfraStructure in Proton International REsearch
- 18 CEITEC
- 19 Walter de Gruyter



## SPONSORSHIP

### Sponsors in total: 3

- 2 gold sponsors – Elekta, Varian
- 1 silver sponsor – RaySearch

### Partner

- IUPAP

### Exhibitors in total: 31

- 17 commercial exhibitors
- 2 non profit exhibitors
- 12 non-commercial exhibitors (free of charge)

The exhibition was located on two levels in total 227 sqm.

Commercial exhibition area 176 sqm.

Non-profit exhibition area 4 sqm.

Booths according to the contract 47 sqm.

### List of commercial and non profits exhibitors (incl. sponsors) alphabetical order:

Canberra-Packard

CEITEC

CIRS Inc

De Gruyter

ECRI Institute

Elekta Instrument AB

IBA Dosimetry

Linet

Micropos Medical

MINIRAD

MR:comp GmbH

PTW-Freiburg

RaySearch Laboratories

ScandiDos

Standard Imaging

Sun Nuclear Corporation

University of Manchester

Varian Medical Systems

XStrahl Ltd.

### List of non-commercial subjects:

WC 2021\_Singapore

Bidder 2024\_Adelaide Convention Bureau

Bidder 2024\_Argentina

Bidder 2024\_Colombia

Bidder 2024\_Japan

Bidder 2024\_Mexico

Institute of Physics and Engineering in Medicine

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**ELEKTA Lunch Symposium**

**Date:** Monday, June 4, 2018

**Time:** 12:45–13:45

**Meeting room:** North Hall

**Title: Innovation in Advanced Radiation Medicine**

**Session 1 – Optimizing Cone Beam CT Guided Radiotherapy**

*Marcel van Herk, Chair of Radiotherapy Physics, University of Manchester and The Christie Hospital, UK*

**Session 2 – MR Guided RT from Vision to Reality**

*Uwe Oelfke, Royal Marsden Hospital, UK*

**Session 3 – Revolution in Planning and Treatment Delivery: High Definition Dynamic Radiosurgery HDRS**

*Roberto Pellegrini, Director Clinical Marketing, Elekta*

## AUSPICES AND COLLABORATIVE INSTITUTIONS

### Auspices

The 2018 World Congress on Medical Physics and Biomedical Engineering will be organized in cooperation with the International Atomic Energy Agency (IAEA)



**IAEA**

International Atomic Energy Agency

is held under the Auspices of Dana Drábová,  
President of the State Office for Nuclear Safety (SÚJB)



is held under the Auspices of Štěpán Svačina,  
President of Czech Medical Association Jan Evangelista Purkyně



is held under the Auspices of the International  
Union of Pure and Applied Physics (IUPAP) and conforms to the IUPAP policies



### Collaborative Institutions

The Czech Technical University in Prague  
Faculty of Nuclear Sciences and Physical Engineering  
Czech Institute of Informatics, Robotics and Cybernetics, Czech Technical University in Prague



## SOCIAL EVENTS

### Opening Ceremony / Plenary Lectures / Awards Ceremony

**Date:** Sunday, June 3, 2018  
**Time:** 14:00–18:30  
**Location:** Forum Hall, Prague Congress Centre

#### Part 1

- 14:00–14:10 **Welcome Music Performance**  
The Czech Technical University in Prague Academic Orchestra
- 14:10–14:15 **Official Congress Opening – President IUPESM**
- 14:15–14:35 **President’s IFMBE, IOMP, CAMP, CSBMEMI Welcome Addresses**
- 14:35–15:35 **IUPESM, IFMBE, IOMP President’s Plenary Lecture**  
**Innovations in Medicine – The Role of Medical Physicists and Biomedical Engineers**  
*Kin Yin Cheung, Medical Physics & Research Department, Hong Kong Sanatorium & Hospital, (Hong Kong, China)*  
**Engineering Innovations for Future Healthcare**  
*James Goh, Biomedical Engineering, National University of Singapore, (Singapore, Singapore)*  
**Global Distribution of Medical Physicists, Their Growth Over the Past 50 Years and Future Development**  
*Slavik Tabakov, Med. Eng. Phys, IOMP and King’s College London, London, (United Kingdom)*

15:35–15:45 **Music Performance**

15:45–16:00 **Break**

#### Part 2

- 16:00–17:00 **Invited Speakers Plenary Lecture**  
**Improving Clinical Outcomes of Adaptive Cancer Therapies with Radiation: Strategies, Technologies and Challenges**  
*Uwe Oelfke, (United Kingdom)*
- 17:00–18:30 **Awards Ceremony**
- 18:30–19:30 **Welcome Cocktail**

### Congress Dinner

**Date:** Wednesday, June 6, 2018  
**Time:** 19:30–23:00  
**Location:** Žofín Palace  
**Dress code:** Semi-formal  
**Catering:** Buffet style dinner  
**Price:** 80 EUR

Registration Fee	No of Participants
Congress Dinner	352
Free Congress Dinner	127
<b>Total</b>	<b>479</b>

### Closing Ceremony

**Date:** Friday, June 8, 2018  
**Time:** 10:45–13:00  
**Location:** Forum Hall, Prague Congress Centre



## SCIENTIFIC VISITS

Registration Fee	No of Participants
SV-2 – Proton Therapy Czech, s.r.o.	23
SV-5 – Biotechnology and Biomedicine Center, BIOCEV Czech Academy of Sciences, Charles University in Vestec	7
SV-6 – National Institute of Mental Health	7
SV-7 – Center for Advanced Preclinical Imaging (CAPI) First Faculty of Medicine, Charles University in Prague	11
<b>Total</b>	<b>48</b>

## TOURS

### Tours

Participants had the option to book sightseeing tours through two local companies – Premiant City Tours or Think Prague. Both offered a number of different tours and excursions in Prague or outside of Prague.



## SUMMARY

### **The IUPESM World Congress 2018 was concluded successfully.**

World Congress 2018 received feedback from many delegates which showed that the overall quality of the Congress, the overall content provided, the opportunities to network with other delegates, and the overall organization and schedule of the scientific program were on the excellent or very good level. Also Partners and Exhibitors were satisfied with high attendance of participants and pleased with the location of the exhibition area.

Despite financial problems during the preparation, the Congress finished with the balanced budget.

The COC and PCO were extremely proud to organize this successful Congress in Prague.







# World Congress on Medical Physics & Biomedical Engineering

June 3–8, 2018  
Prague, Czech Republic

[www.iupesm2018.org](http://www.iupesm2018.org)



## Congress Secretariat

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<http://www.praha.eu/jnp/en/index.html>

