

## 2018 AAPM/IOMP – ISEP THERAPY COURSE CHALLENGES IN MODERN RADIATION THERAPY PHYSICS

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### I. COURSE OUTLINE

The purpose of this article is to report on the joint AAPM-ISEP/IOMP Therapy Course that took place in July 3-7, 2018 in Ljubljana, Slovenia. The course was given in collaboration with the Institute of Oncology in Ljubljana and Faculty of Mathematics and Physics at the University of Ljubljana. The Ljubljana Institute of Oncology and its associated hospital are modern, well equipped institutions. Faculty of Mathematics and Physics runs a dynamic educational and research program of medical physics and many future medical physicists thrive in its stimulating environment.

The title of the course, "Challenges in Modern Radiation Therapy Physics" well reflected the topics that included modern radiation dose calculation algorithms, treatment modalities including proton and heavy ion beams, imaging and dosimetry. The course directors were Joanna Cygler, Božidar Casar (local arrangements) and Robert Jeraj (scientific content).

Lectures were given by several faculty sponsored by AAPM: Thomas Bortfeld, Joanna Cygler, Saiful Huq, Rock Mackie and David Rogers. They were supplemented by three local speakers from Ljubljana Institute of Oncology: Božidar Casar, Robert Jeraj and Ignacio Mendez. Special guest lectures were delivered by Stine Korreman (IGRT), Bert van der Kogel (Radiobiology) and Slavik Tabakov (Medical Physics Global Workforce).

Ervin Podgoršak, currently a Professor Emeritus of McGill University in Montreal, Canada, attended the course as a special guest of honor. Ljubljana holds a special place in his heart, since Prof. Podgoršak not only grew up there, but he also started his prominent career in the Faculty of Mathematics and Physics at the University of Ljubljana. He delivered a lecture on "Professional Issues in Medical Physics", the ever-important topic in the constantly evolving careers of medical physicists. Special highlight of the course was AAPM TG 100 Workshop given by Saiful Huq. The participants also enjoyed the demos of Virtual Environment Radiotherapy Training (VERT) system for radiotherapy professionals training organized and ran by Andy Beavis.

At the end of the course, practical demonstrations were organized for participants at the Institute of Oncology

including patient specific QA/QC procedures for VMAT, IGRT procedures, execution of Winston-Lutz test and presentation of TBI translation coach technique on linear accelerator.

Figure 1 presents the course program. Figures 2-6 show photos of some highlights of the course.

You can find more information about the course (and more photos) on its web page, <http://www.aapm-isep.si>.

The course progressed very smoothly, which no doubt was due to the excellent Local Committee work, especially Maruša Turk and her fellow medical physics PhD students.

The course had a truly international flair, as its 80 participants came from over 20 different countries and 4 continents. The attendees enjoyed the lectures and interactions with the faculty during coffee breaks and lunches. All lectures and events were diligently recorded by the official course photographer, Ana Marin

Overall the course got excellent evaluations not only for scientific content and quality of the lectures, but also for its organization. What is also important, everybody had fun learning and playing together. The feedback received about the course was overall excellent and we already received some requests about organizing it again, perhaps with more content on proton therapy.

**"Challenges in Modern Radiation Therapy Physics"**  
 Special topic: Workshop on TG-100

AAPM - ISEP course, Ljubljana, Slovenia, 3rd - 7th July 2018  
 Course Directors: Joanna Cygler (AAPM) and Božidar Casar (Host)  
 Scientific Program Director: Robert Jeraj

Date	Session #1		15 min	Session #2		12:15-12:45	12.45-13.30	13:30 - 14:00	Session #3		15 min	Session #4	
	1 hr 30 min			1 hr 30 min					1 hr 30 min			1 hr 30 min	
	9:00 - 9:45	9:45 - 10:30		10.45 - 11.30	11.30 - 12.15				14:00 - 14.45	14.45 - 15.30		15.45 - 16.30	16.30 - 17.15
Tue 03.07.2018	FREE MORNING/ARRIVALS			REGISTRATION				Opening (13.00-13.30) RT Physics in Slovenia (BC)	Professional Issues in Medical Physics (EP)	IOMP speaker (ST)	Coffee Break 15 min.	Future of RT and role of physics in it (ALL)	Debate - future of ALL
Wed 04.07.2018	TPS in the clinics today - MC based TPS (JC)	MC based TPS - issues to consider in clinical practice (D <sub>0</sub> /D <sub>90</sub> ) (JC-DR)	Coffee Break 15 min.	non - MC based TPS - issues to consider in clinical practice (D <sub>0</sub> /D <sub>90</sub> ) (RM)	TG-142 (KM)	Vendor IBA	LUNCH	VERT demo 1st group + Exhibition	Reference dosimetry (DR)	Reference dosimetry (DR)	Coffee Break 15 min.	Modern RT dosimetry - review of detectors (JC)	Small file TRS-483 (JC)
Thu 05.07.2018	Radiochromic film dosimetry (EM)	Overview of IMRT (TG-120) (RM)	Coffee Break 15 min.	Clinical implementation of SRS/SBRT (TG-101) (SH)	Imaging in RT (RJ)	Vendor Elekta	LUNCH	VERT demo 2nd group + Exhibition	IGRT - current practice (SK)	Imaging for precision medicine in RT (RJ)	Coffee Break 15 min.	Exhibition	Social evening (16:22:00)
Fri 06.07.2018	Why protons (TB)	Why not protons (TB)	Coffee Break 15 min.	Particle therapy (TB)	Radiobiology of particle therapies (BK)	Vendor Varian	LUNCH	VERT demo 3rd group + Exhibition	Radiobiology of SBRT and Hypofraction (BK)	TG-100 workshop (SH)	Coffee Break 15 min.	TG-100 workshop (SH)	TG-100 workshop
Sat 07.07.2018	TG-100 workshop (SH)	TG-100 workshop (SH)	Coffee Break 15 min.	TG-100 workshop (SH)	Participants Impressions - Course and WS	Vendor Brainlab	LUNCH	VERT demo 4th group + Exhibition	TRANSFER	Visit to the Institute of Oncology (*) - practical demo			Test & closure (lecture room)

\* Demo at the Institute of Oncology: 1. Patient specific QA/QC for VMAT, 2. IGRT procedures, 3. Winston-Lutz test, 4. TBI translation couch technique on linac

Fig. 1 AAPM-ISEP/IOMP Therapy Course full programme



Fig. 2 AAPM-ISEP/IOMP Therapy Course participants, Ljubljana, Slovenia, July 2018



Fig. 3 AAPM-ISEP/IOMP Therapy Course, Ljubljana, Faculty photo



Fig. 4 Engaged audience at the AAPM-ISEP/IOMP Therapy Course, Ljubljana,



Fig. 5 Prof. Ervin Podgoršak, Special Lecturer/Guest of Honour Casar



Fig. 6 Joanna Cygler presents the AAPM Recognition Plaque to Božidar Casar