

## PROGRAM DRAFT (as of Dec. 6<sup>th</sup>, 2023)

### Target group

- BSc, MSc, PhD & MD students with a background in Physics, Medical Physics, Radiation Therapy, Medical Technology  
BSc students should be at the end of their studies.
- Young scientists or clinical trainees or medical technologists
- Further requirements:
  - Prior knowledge in radiotherapy physics

### Online Phase: Oct. 16<sup>th</sup> – Dec. 10<sup>th</sup> 2023

#### 1. Recordings (Duration of rec. no. 1-4 = 30 min. each; duration of rec. no. 5 – 23: 60 min. each)

Recording	Main Topic	Talk	Speaker
Rec. 0		Overview on Medical Physics Research in Heidelberg - Imaging (30 min.)	Tanja Platt (HD)
Rec. 1	Introduction	The role of Imaging for Radiooncology and Radiotherapy – from physics view (30 min.)	Oliver Jäkel (HD)
Rec. 2		The role of Imaging for Radiooncology and Radiotherapy – from physician's view (30 min.)	Fabian Weykamp (HD)
Rec. 3		Introduction to image guidance in Radiotherapy – from physics view (30 min.)	Oliver Jäkel (HD)
Rec. 4		Introduction to image guidance in Radiotherapy – from physician's view (30 min.)	Eva Meixner (HD)
Rec. 5	Refresher Imaging Techniques	Refresher CT Imaging	Stefan Sawall (HD)
Rec. 6		Dual Energy CT	Stefan Sawall (HD)
Rec. 7		Cone-Beam CT	Oliver Jäkel (HD)
Rec. 8		Refresher MR Imaging	Daniela Cornejo (Chile)
Rec. 9		Refresher PET Imaging	Andrea Russomando (Chile)
Rec. 10		Refresher PET-CT	Andrea Russomando (Chile)
Rec. 11		Refresher PET-MR	Daniela Cornejo (Chile)
Rec. 12	Treatment Techniques	Cyberknife + Tomotherapy (physics)	Oliver Jäkel (HD)
Rec. 13		Stereotactic and Registration Methods	Oliver Jäkel (HD)
Rec. 14		MR-Linac (physics)	Stefan Dorsch (HD)
Rec. 15		Introduction Particle Therapy (& Particle Therapy in Heidelberg)	Oliver Jäkel (HD)

Rec. 16		Combination of Radiotherapy and Photodynamic Therapy	Hilde Buzza (Chile)
Rec. 17	Treatment Planning	Refresher IMRT from a clinical perspective (including task)	Katharina Weusthof (HD)
Rec. 18		Introduction Target Volume delineation: PTV Concepts & ICRU Concepts	Katharina Weusthof (HD)
Rec. 19		Refresher Inverse planning & IMRT Dose Calculation, including task	Niklas Wahl (HD)
Rec. 20	Radiobiology	Introduction to Radiobiology 1	Beatriz Sanchez (Chile)
Rec. 21		Introduction to Radiobiology 2	Beatriz Sanchez (Chile)
Rec. 22	Dosimetry	Dosimetry 1	Paola Caprile (Chile)
Rec. 23		Dosimetry 2	Paola Caprile (Chile)

During the online phase, participants will get access to virtual tours about treatment devices from Heidelberg. The tours explain the different workflows of these devices. During the attendance phase, participants will discuss the different workflows with the expert from Heidelberg.

### 2. Online Sessions on Zoom during Online Phase

Date	Time (Germany)	Time (Chile)	Main Topic	Talk	Speaker
<b>23.10.2023</b>	15.30 – 16.00	10.30 – 11.00	Welcome and Introduction	Mandatory Online-ID-Check	Anna, Pamela & Marcel
	16.00 – 16.30	11.00 – 11.30		Online: Welcome, Introduction and expectations	Pamela & Marcel
	16.30 – 17.15	11.30 – 12.15		Overview on medical physics research in Heidelberg – contributing institutes	Oliver Jäkel (HD)
	17.15 – 18.00	12.15 – 13.00		Overview on medical physics research in Chile – contributing institutes	Paola Caprile (Chile)
<b>23.11.2023</b>	16.00 – 17.00	12.00 – 13.00	CT/MR Imaging	CT for RT and Limitations of CT Imaging	Stefan Sawall (HD)
	17.00 – 18.00	13.00 – 14.00		MR for RT and Limitations of MR Imaging	Stefan Dorsch (HD)
<del>30.11.2023</del> <b>06.12.2023</b>	16.00 – 17.00	12.00 – 13.00	IMRT	IMRT Indications I and II: introduction and case discussion (prepared by participants), based on recording by Katharina Weusthof	Katharina Weusthof (HD)
				17.00 – 18.00	13.00 – 14.00
<b>07.12.2023</b>	<del>16.00 – 16.45</del>	<del>12.00 – 12.45</del>	Summary and Outlook	<del>Studying in Germany</del>	<del>DAAD-Chile: Claudia Rodriguez</del>
	16.45 – 17.20	12.45 – 13.20		Introducing the DKFZ PhD Program, by Michaela Steiner	Paola Caprile & Oliver Jäkel
	17.20 – 17.30	13.20 – 13.30		Questions concerning DKFZ PhD Program with Pamela Ochoa-Parra (HD)	Paola Caprile & Oliver Jäkel
	17.30 – 18.00	13.30 – 14.00		Summary Online phase & Outlook Attendance phase	Paola Caprile & Oliver Jäkel

**Duration of mandatory Online Test (Multiple Choice) about all topics taught during the Online Phase: Nov. 20<sup>th</sup> (6pm) – Dec. 07<sup>th</sup> 2023 (11.55pm)**

During the period of the online test, participants can do the test whenever they have time.

### Attendance Phase/Live-Online-Phase: Dec. 11<sup>th</sup> – Dec. 15<sup>th</sup> 2023

Venue: Heidelberg Center Latin America (HCLA), Las Hortensias 2340, Providencia, Santiago de Chile

Main Topic: Contouring

Mon. 11.12.23	Time (Germany)	Time (Chile)	Main Topic	Talk	Speaker
	13.00 – 13.30	9.00 – 9.30		Registration	
	13.30 – 14.00	9.30 – 10.00	Welcome	Welcome by Course Leaders and Team	Paola Caprile (Chile), Oliver Jäkel & Marcel Schäfer (HD)
	14.00 – 15.00	10.00 – 11.00	Contouring	PTV concepts/contouring for different examples (e.g. ICRU Concepts, Heidelberg Modell)	Katharina Weusthof (HD)
	15.00 – 16.00	11.00 – 12.00		Segmentation Algorithms ( <i>online</i> )	Kristina Giske (HD)
	16.00 – 16.30	12.00 – 12.30		Coffee Break	
	16.30 – 17.30	12.30 – 13.30	Contouring	Discussion of selected entities: interactive session based on clinical cases	Sebastian Regnery (HD)
	17.30 – 18.30	13.30 – 14.30		Lunch	
	18.30 – 20.00	14.30 – 16.00	Workshop	Contouring Workshop with Elekta/Mosaik, part 1 (organized by Ignacio Verdugo)	Paola Caprile (Chile) Ignacio Espinoza (Chile) Katharina Weusthof (HD) Sebastian Regnery (HD)
	20.00 – 20.30	16.00 – 16.30		Coffee Break	
	20.30 – 22.00	16.30 – 18.00	Workshop	Contouring Workshop with Elekta/Mosaik, part 2 (organized by Ignacio Verdugo)	Paola Caprile (Chile) Ignacio Espinoza (Chile) Katharina Weusthof (HD) Sebastian Regnery (HD)
		18.00	Networking	Get Together at HCLA	

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Venue: Heidelberg Center Latin America (HCLA), Las Hortensias 2340, Providencia, Santiago de Chile

Main Topic: IGRT scenarios & Treatment planning/Workflows

Tue. 12.12.23	Time (Germany)	Time (Chile)	Main Topic	Talk	Speaker
	13.00 – 14.00	9.00 – 10.00	Workflows	IGRT workflows overview	Vania Batista (HD)
	14.00 – 15.00	10.00 – 11.00		Planning process in the clinical routine (workflow, templates, clinical protocols, MCO)	Vania Batista (HD)
	15.00 – 15.30	11.00 – 11.30		Coffee Break	
	15.30 – 16.30	11.30 – 12.30	Treatment Planning	Treatment Planning (3D vs. IMRT, robustness)	Vania Batista (HD)
	16.30 – 17.30	12.30 – 13.30		Lunch Break	
	17.30 – 18.30	13.30 – 14.30	Treatment planning	Dose calculation with matRad, based on rec. by Niklas Wahl	Niklas Wahl (HD)
	18.30 – 19.30	14.30 – 15.30		Dose calculation with matRad, based on rec. by Niklas Wahl	Niklas Wahl (HD)
	19.30 – 20.00	15.30 – 16.00		Coffee Break with poster visits	
	20.00 – 22.00	16.00 – 18.00	Workflows	Discussion of comparisons of workflows, shown on the virtual tours: MR-Linac, Cyberknife, IGRT (Standard) (ETHOS), including poster session	Oliver Jäkel, Marcel Schäfer & Pamela Ochoa-Parra (HD)

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**Main Topic:** Dosimetry & Treatment Planning

Wed. 13.12.23	Time (Germany)	Time (Chile)	Main Topic	Talk	Speaker
	13.00 – 14.00	9.00 – 10.00	Dosimetry	Patient Dosimetry	Ignacio Espinoza (Chile)
	14.00 – 15.00	10.00 – 11.00		EPID Dosimetry	Ignacio Espinoza (Chile)
	15.00 – 15.30	11.00 – 11.30		Coffee Break	
	15.30 – 16.30	11.30 – 12.30	Treatment Planning	Introduction to IGRT and Treatment Planning	Sebastian Regnery (HD)
	16.30 – 17.30	12.30 – 13.30		Lunch Break	
	17.30 – 19.30	13.30 – 15.30	Treatment Planning	Treatment Planning Workshop (best cases from contouring discussed and planned), organized by Ignacio Verdugo	Katharina Weusthof (HD) Sebastian Regnery (HD)
	19.30 – 20.00	15.30 – 16.00		Coffee Break	
	20.00 – 21.00	16.00 – 17.00		Discussion Round with German and Chilean experts and students (rotation)	All speakers (Moderator: Marcel Schäfer)
	-	17.00 – 19.30	Networking	Guided City Tour Santiago (meeting point HCLA, paid by DAAD)	

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Main Topic: Clinical Applications

Thu. 14.12.23	Time (Germany)	Time (Chile)	Main Topic	Topic	Speaker
	13.00 – 13.45	9.00 – 09.45	Rotational and Advanced Techniques	Clinical Application of Image-guided and Adaptive Radiotherapy ( <i>online via Zoom</i> )	Stefan Körber (HD)
	13.45 – 14.30	09.45 – 10.30		Clinical Application of Tomotherapy ( <i>online via Zoom</i> )	Stefan Körber (HD)
	14.30 – 15.00	10.30 – 11.00		Coffee Break	
	15.00 – 15.45	11.00 – 11.45	Advanced Techniques	Clinical Application of MR-Linac	Sebastian Regnery (HD)
	15.45 – 16.30	11.45 – 12.30		Clinical Application of Cyberknife ( <i>online via Zoom</i> )	Philipp Hoegen (HD)
	16.30 – 16.45	12.30 – 12.45		Short Break	
	16.45 – 17.30	12.45 – 13.30		Clinical Application of Particle Therapy ( <i>online via Zoom</i> )	Semi Harrabi (HD)
<p>OPTIONAL: transfer to Clínica Alemana Santiago de Chile (CAS) to participate in the scientific workshop about “Adaptive Radiation Therapy” (Dec. 14<sup>th</sup> &amp; 15<sup>th</sup> 2023 from 14.30 – 18.30 o'clock (Chilean time) each day).            Separate registration required. For more information, please go to <a href="https://www.dkfz.de/en/medphys/education_and_training/workshop_chile2023.html">https://www.dkfz.de/en/medphys/education_and_training/workshop_chile2023.html</a> or contact the course coordinating team at <a href="mailto:medphyschile@dkfz-heidelberg.de">medphyschile@dkfz-heidelberg.de</a></p>					
	-	19.30	Networking	Dinner with all participants and speakers of the summer school (paid by DAAD)	

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**Main topic:**

Fri. 15.12.23	Time (Germany)	Time (Chile)	Main Topic	Talk	Speaker
	13.00 – 14.00	9.00 – 10.00	Alumni	Alumni Reports in Medical Physics: Round table discussions with former students in Medical Physics. Alumni from Heidelberg join online	Pamela Ochoa-Parra (HD)
	14.00 – 15.00	10.00 – 11.00		Alumni Reports in Medical Physics: Round table discussions with former students in Medical Physics. Alumni from Heidelberg join online	Pamela Ochoa-Parra (HD)
	15.00 – 15.30	11.00 – 11.30		Coffee Break	
	15.30 – 16.30	11.30 – 12.30	Exam	Summary and Exam about topics taught during attendance phase.	Oliver Jäkel & Paola Caprile
	16.30 – 17.00	12.30 – 13.00		Wrap-up & Conclusion of the summer school	All speakers
<p>OPTIONAL: transfer to Clínica Alemana Santiago de Chile (CAS) to participate in the scientific workshop about “Adaptive Radiation Therapy” (Dec. 14<sup>th</sup> &amp; 15<sup>th</sup> 2023 from 14.30 – 18.30 o’clock (Chilean time) each day).            Separate registration required. For more information, please go to <a href="https://www.dkfz.de/en/medphys/education_and_training/workshop_chile2023.html">https://www.dkfz.de/en/medphys/education_and_training/workshop_chile2023.html</a> or contact the course coordinating team at <a href="mailto:medphyschile@dkfz-heidelberg.de">medphyschile@dkfz-heidelberg.de</a></p>					

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