

## 4D Treatment Workshop for Particle Therapy

As of 22/11/2018

**■ Dates:** 7-8 of December 2018  
**■ Venue:** Executive Conference Room  
 The Alumni Hall "Frate"  
 Hokkaido University, JAPAN

### 【Day 1】

Time		Topic	Title	Speaker
10:00	Welcome Remarks			Hiroki Shirato (Hokkaido University)
10:30-12:00	<u>1. Session</u>	Clinical practice (State of the art photon & proton therapy)	Overview about clinical indications of moving targets - state of the art photon and proton treatment (35min+10min)	Shinichi Shimizu (Hokkaido University)
			State of the art for moving targets treated in proton therapy (35min+10min)	Zhongxing Liao (MD Anderson Cancer Center)
12:00-13:30 Lunch				
13:30-15:45	<u>2. Session</u>	4D treatment planning	4D strategies - proton specific margins, scan path optimization, spot size optimization, spot weight optimization, beam angle optimization, number of field optimization - what is worth further investigation? (35min+10min)	Tony Lomax (Paul Scherrer Institute)
			Experience from the clinical implementation of TrueBeam SBRT and Gated VMAT (35min+10min)	Annie Hsu (Stanford University)
			Patient specific QA for mobile indications - the value of log-files (35min+10min)	Antje Knopf (University of Groningen)
15:45-16:00 Coffee Break				
16:00-17:00	<u>A. Site Tour</u>	Hokkaido University Hospital Proton Beam Therapy Center	Treatment room /Accelerate room tour Demonstration of beam delivery to moving phantom.	
17:00-18:30	Poster Session			
19:30 Reception (sponsored by Hitachi)				

### 【Day 2】

Time		Topic	Title	Speaker
8:30-10:45	<u>3. Session</u>	4D imaging	In-room 4DCT, 4DCBCT, fluoroscopy, Calypso (35min+10min)	Shinichiro Mori (National Institute of Radiology Science)
			Surface imaging and internal imaging - what are they worth? (35min+10min)	Naoki Miyamoto (Hokkaido University)
			4D MR imaging (from off-line towards online - what are the challenges/promises? (35min+10min)	Bas Raaymakers (University Medical Center Utrecht)
10:45-11:00 Coffee Break				
11:00-12:30	<u>4. Session</u>	4D dosimetry	4D phantoms - what is available / what still needs to be developed? (35min+10min)	Yoshikazu Tsunashima (Saga HIMAT)
			4D adapted treatment approaches - weekly adaptation, plan of the day, real-time tracking - what is clinical feasible? (35min+10min)	Paul Keall (Sydney Medical School)
12:30-13:30 Lunch				
13:30 - 15:00	<u>5. Session</u>	New impulses for 4D proton treatments	Personalized deep learning - Real-time projected-CTV contouring in X-ray fluoroscopy (35min+10min)	Toshiyuki Terunuma (University of Tsukuba)
			How could artificial intelligence, deep learning or neural networks help us? (35min+10min)	Nikos Paragios (Ecole Centrale Paris)
15:00 - 15:30	Summary	Highlights / report / list of definitions/ location & focus next year		Antje Knopf / Shinichi Shimizu