11th Annual LLU Algorithm Workshop - Agenda (in Person and Virtual)

Time (PDT)	**Monday, August 4, 2025** Superiorization, Robust Optimization, Limited Angle Image Reconstruction, AI, Proton Arc Therapy, Educational	**Tuesday, August 5, 2025** Particle CT (p, He, e) Technology, Treatment Planning Algorithms, Online Adaptation, AI applications for Precision Medicine	**Wednesday, August 6, 2025** Biomathematical Modeling of Treatment Outcomes, FLASH RT, Nanodosimetry & Cluster Dose
7:30 AM	Welcome & Daily Overview Sherer Heider Room, Wong-Kerlee Conference Center	Welcome & Daily Overview Sherer Heider Room, Wong-Kerlee Conference Center	Welcome & Daily Overview Sherer Heider Room, Wong-Kerlee Conference Center
8:00 AM	Thomas Humphries: **Plug-and-Play Superiorization**	Wei Liu: **Online Adaptive Proton Therapy**	Wolfgang Tome: **Biomathematical Modeling in Tumor Control and Normal Tissue Complication: Insights from SBRT**
8:30 AM	Kay Barshad: **A necessary condition for the guarantee of the superiorization method**		
9:00 AM	Chris Lin: **An Evaluation of Compressed-Sensing Inspired Techniques on Limited-Angle Image Reconstruction**	Choonsik Lee: **Physics contribution to the NCI pediatric proton vs. photon therapy comparison study**	Hans Rabus: **Does the radiosensitizing effect of gold nanoparticles depend on cell culture? – a scientific detective story**
9:30 AM	Remo Cristoforetti: **Avoiding scenarios: An efficient approach to scenario-free 4D and Multi-Criteria robust optimization**	Felix Ulrich-Pur: **Helium imaging with a new time-of-flight ion computed tomography system based on LGADs**	**Break**
10:00 AM	George Dedes: **An AI-based photon dose calculation algorithm for MR-linacs: bypassing the need for synthetic CT**	Malinda de Slva: **Electron CT- An Alternative Medical Imaging Technique Using Very High Energy Electrons**	Marco Durante: **Heavy Ion FLASH radiotherapy**
10:30 AM	Niek Schreuder: **How Proton Arc can provide the needed stimulus to democratize Proton Therapy - what is needed and how to achieve this**	Kiana Lillard: **Optimizing Iterations and Phi-Space for Efficient Prostate Proton Therapy**	Magdalena Węgrzyn: **Quantifying DNA damage induced by proton FLASH and NON-FLASH irradiation in a plasmid DNA model at various scavenging capacities**
11:00 AM	Samuel Onyambu: **KARGO – Kriging-based Adaptive Region Global Optimization Algorithm**	Yair Censor: **Hard and Soft Constraints in Feasibility-Seeking for Radiation Therapy Treatment Planning**	Ramon Ortiz: **Cluster dose as a new paradigm for proton and ion therapy treatment planning based on nanodosimetric quantities**
11:30 AM	Eman Rezk: **Responsible AI in Medical Diagnosis: Bridging Gaps, Building Trust**	Hendrik Speiser: **Proton Radiography Using the FE-I4 ATLAS Pixel Detector**	João Canhoto: **Association between Cluster Dose and radiation-induced DSB foci: the role of Sensitive Volume geometry**
12:00 PM 12:30 PM	**Lunch**	**Lunch**	**Lunch**
1:00 PM	Keith Schubert: **Principal Component Analysis for Graduate Students**	Paul Keall: **Towards real-time dose-guided radiation therapy: Similarities, differences, challenges and opportunities for proton and photon treatments**	Simona Facchiano: **An ion treatment planning framework for inclusion of nanodosimetric ionization detail through cluster dose**
1:30 PM			Victor Merza: **Further development of a compact nanodosimeter**
2:00 PM	Abdelkhalek Hammi: **The Role of Patient-specific Cerebrovascular Anatomy and Radiotherapy Modality in Calculating Dose to Circulating Blood Cells for Glioblastoma Patients**	Alexander Pryanichnikov: **Proton and Helium Pencil Beam Radiography and Tomography with a Full-Scale Imaging Detector at HIT: Challenges and Recent Developments**	Niklas Wahl: **From matRad to pyRadPlan – A Development Update**
2:30 PM	Free Time	Alexander Pryanichnikov: **Image-Guided Adaptive Proton Therapy for H&N, CNS and Lung Cancers Using a Novel Gantry-Less System**	Free Time
3:00 PM		Hao Peng: **AI for adaptive and personalized radiation therapy**	
7:00 PM	Dinner at **Gandhi, Cuisine of India**, 25548 Barton Road, Loma Linda, CA 92354	Redlands Bowl, 25 Grant Street, Redlands, CA 92373 Tuesday night performance: **Bee Gees Gold** – A tribute to the legendary disco trio	

11th Annual LLU Algorithm Workshop - Agenda (in Person and Virtual)

Time (PDT)	**Monday, August 4, 2025** Superiorization, Robust Optimization, Limited Angle Image Reconstruction, AI, Proton Arc Therapy, Educational
7:30 AM	Welcome & Daily Overview Sherer Heider Room, Wong-Kerlee Conference Center
8:00 AM	Thomas Humphries: **Plug-and-Play Superiorization**
8:30 AM	Kay Barshad: **A necessary condition for the guarantee of the superiorization method**
9:00 AM	Chris Lin: **An Evaluation of Compressed-Sensing Inspired Techniques on Limited-Angle Image Reconstruction**
9:30 AM	Remo Cristoforetti: **Avoiding scenarios: An efficient approach to scenario-free 4D and Multi-Criteria robust optimization**
10:00 AM	George Dedes: **An AI-based photon dose calculation algorithm for MR-linacs: bypassing the need for synthetic CT**
10:30 AM	Niek Schreuder: **How Proton Arc can provide the needed stimulus to democratize Proton Therapy - what is needed and how to achieve this**
11:00 AM	Samuel Onyambu: **KARGO – Kriging-based Adaptive Region Global Optimization Algorithm**
11:30 AM	Eman Rezk: **Responsible AI in Medical Diagnosis: Bridging Gaps, Building Trust**
12:00 PM	**Lunch**
1:00 PM	Keith Schubert: **Principal Component Analysis for Graduate Students**
1:30 PM	
2:00 PM	Abdelkhalek Hammi: **The Role of Patient-specific Cerebrovascular Anatomy and Radiotherapy Modality in Calculating Dose to Circulating Blood Cells for Glioblastoma Patients**
2:30 PM	Free Time
3:00 PM	
7:00 PM	Dinner at **Gandhi, Cuisine of India**, 25548 Barton Road, Loma Linda, CA 92354

11th Annual LLU Algorithm Workshop - Agenda (in Person and Virtual)

Time (PDT)	**Tuesday, August 5, 2025** Particle CT (p, He, e) Technology, Treatment Planning Algorithms, Online Adaptation, AI applications for Precision Medicine
7:30 AM	Welcome & Daily Overview Sherer Heider Room, Wong-Kerlee Conference Center
8:00 AM	Wei Liu: **Online Adaptive Proton Therapy**
8:30 AM	
9:00 AM	Choonsik Lee: **Physics contribution to the NCI pediatric proton vs. photon therapy comparison study**
9:30 AM	Felix Ulrich-Pur: **Helium imaging with a new time-of-flight ion computed tomography system based on LGADs**
10:00 AM	Malinda de Slva: **Electron CT- An Alternative Medical Imaging Technique Using Very High Energy Electrons**
10:30 AM	Kiana Lillard: **Optimizing Iterations and Phi-Space for Efficient Prostate Proton Therapy**
11:00 AM	Yair Censor: **Hard and Soft Constraints in Feasibility-Seeking for Radiation Therapy Treatment Planning**
11:30 AM	Hendrik Speiser: **Proton Radiography Using the FE-I4 ATLAS Pixel Detector**
12:00 PM	**Lunch**
1:00 PM	Paul Keall: **Towards real-time dose-guided radiation therapy: Similarities, differences, challenges and opportunities for proton and photon treatments**
1:30 PM	
2:00 PM	Alexander Pryanichnikov: **Proton and Helium Pencil Beam Radiography and Tomography with a Full-Scale Imaging Detector at HIT: Challenges and Recent Developments**
2:30 PM	Alexander Pryanichnikov: **Image-Guided Adaptive Proton Therapy for H&N, CNS and Lung Cancers Using a Novel Gantry-Less System**
3:00 PM	Hao Peng: **AI for adaptive and personalized radiation therapy**
7:00 PM	Redlands Bowl, 25 Grant Street, Redlands, CA 92373 Tuesday night performance: **Bee Gees Gold** – A tribute to the legendary disco trio

11th Annual LLU Algorithm Workshop - Agenda (in Person and Virtual)

Time (PDT)	**Wednesday, August 6, 2025** Biomathematical Modeling of Treatment Outcomes, FLASH RT, Nanodosimetry & Cluster Dose
7:30 AM	Welcome & Daily Overview Sherer Heider Room, Wong-Kerlee Conference Center
8:00 AM 8:30 AM	Wolfgang Tome: **Biomathematical Modeling in Tumor Control and Normal Tissue Complication: Insights from SBRT**
9:00 AM	Hans Rabus: **Does the radiosensitizing effect of gold nanoparticles depend on cell culture? – a scientific detective story**
9:30 AM	**Break**
10:00 AM	Marco Durante: **Heavy Ion FLASH radiotherapy**
10:30 AM	Magdalena Węgrzyn: **Quantifying DNA damage induced by proton FLASH and NON-FLASH irradiation in a plasmid DNA model at various scavenging capacities**
11:00 AM	Ramon Ortiz: **Cluster dose as a new paradigm for proton and ion therapy treatment planning based on nanodosimetric quantities**
11:30 AM	João Canhoto: **Association between Cluster Dose and radiation-induced DSB foci: the role of Sensitive Volume geometry**
12:00 PM	
12:30 PM	**Lunch**
1:00 PM	Simona Facchiano: **An ion treatment planning framework for inclusion of nanodosimetric ionization detail through cluster dose**
1:30 PM	Victor Merza: **Further development of a compact nanodosimeter**
2:00 PM	Niklas Wahl: **From matRad to pyRadPlan – A Development Update**
2:30 PM 3:00 PM 7:00 PM	Free Time