Advancements in GRID/Lattice, Microbeam and FLASH Radiotherapy

In conjunction with the Radiosurgery Society® Annual Scientific Meeting held on April 1, 2020, in Washington D.C.

The symposia will focus on the proposed mechanisms of action and strategies for clinical translation of the novel unconventional spatial-temporal modalities GRID and Lattice radiotherapy, Microbeam and FLASH Radiotherapy. Clinical translation will focus on developing a consensus approach for appropriate clinical trial concepts to investigate clinical utility. Mechanisms and clinical translational aspects of the immune effects (“radiation as a drug”) of GRID/Lattice, Microbeam and FLASH radiotherapy will be emphasized.

Target Audience: Radiation oncologists, medical physicists, cancer biologists, radiation biologists, medical oncologists and surgical oncologists.

Symposium Objectives:

- Provide a forum for experts and the established working groups on GRID/Lattice, Microbeam and FLASH radiotherapy to share most current knowledge and new scientific results.
- Define challenges of GRID/Lattice, Microbeam and FLASH radiotherapy for clinical translation aimed at improving radiation delivery and clinical care.
- Develop clinical studies using GRID/Lattice, Microbeam and FLASH radiotherapy for the treatment of cancer.

Organizing Committee:

Soren Bentzen, PhD, Professor of Radiation Oncology, Dept. of Radiation Oncology, University of Maryland, Maryland, MD

Robert Griffin, PhD, Professor and Director, Radiation Biology Division, University of Arkansas for Medical Sciences, Dept. of Radiation Oncology, Little Rock, AR

Quynh-Thu Le MD, FACR, FASTRO, Professor & Chair, Department of Radiation Oncology, Stanford School of Medicine, Palo Alto, CA

Charlie Limoli, PhD, Professor, Vice Chair of Research and Academic Affairs, Dept. of Radiation Oncology, University of California, Irvine, CA

Nina Mayr, MD, Professor of Radiation Oncology, University of Washington, Seattle, WA

Majid Mohiuddin, MD, Medical Director, Radiation Oncologist, Lutheran General Hospital, Parkridge, IL

Charles Simone, MD, Professor and Chief Medical Officer, New York Proton Center and Memorial Sloan Kettering Cancer Center

James (JW) Snider, MD, Assistant Professor, Dept. of Radiation Oncology, University of Maryland School of Medicine, Maryland, MD

Xiaodong Wu, PhD, Founder & President Medical Physics Associates and Biophysics Research Institute of America, Adjunct Professor, Department of Biomedical Engineering, University of Miami, Miami, FL

Hualin Zhang, PhD, Associate Professor, Dept. of Radiation Oncology, Northwestern Memorial Hospital, Chicago, IL
7:45 am Opening Remarks
Norm Coleman, MD, Head, Experimental Therapeutics Section Associate Director, Radiation Research Program, DCTD, NCI; Mansoor Ahmed, PhD, Program Director, Radiotherapy Development Branch, DCTD, NCI

8:00 - 9:45am GRID Therapy - Moderators: Robert J. Griffin, PhD and Majid Mohiuddin, MD
8:00 – 8:25 "Peaks and valleys: what may or may not be important for the successful use of the biological response to spatially fractionated radiotherapy." Robert J. Griffin, PhD, Univ of Arkansas Medical School
"Activation of anti-tumor immune response by partial-volume SINGLE dose radiation" Adriana Haimovitz, PhD, MSKCC
8:25 - 8:50 "Clinical spatially fractionated radiation therapy (GRID): 15-year experience from the University of Arkansas for Medical Sciences" Jose Penagaricano, MD, Moffitt Cancer Center
"Spatially fractionated (GRID) radiotherapy for high-risk soft tissue sarcoma: An illustrative, initial clinical experience." JW Snider, MD, Maryland
8:50 – 9:15 "A novel 3D-VMAT based GRID therapy" Xin Zhang, PhD, Boston University
"Minibeam radiation therapy: from photons to charged particles." Yolanda Prezado, PhD, CNRS-Institute Curie
9:15 – 9:25 “Emerging clinical trial concepts for GRID” Majid Mohiuddin, MD, Chicago, IL
9:25 – 9:45 Open Forum/Q&A

9:45 – 10:00am Break/Discussion

10:00 – 11:45am LATTICE Therapy - Moderators: Dr. Xiaodong Wu, PhD and J.W. Snider, MD
10:00 – 10:10 “GRID and Lattice Radiotherapy: Where do we stand biologically.” Mansoor Ahmed, PhD, NCI Radiation Research Program
10:10 – 10:40 “Clinical Applications of Lattice: The Innovative Cancer Institute Experience.” Beatriz Amendola, MD, Innovative Cancer Institute
"The application of LATTICE in preoperative radiotherapy of locally advance breast cancer-a clinical phase II study”. Benhua Xu, Fujian Union Hosp
10:40 – 11:00 "Modeling biological effects for SFRT” Xiaodong Wu, PhD, U Miami, Biophysics Institute
11:00 – 11:10 “Practical clinical Trials in Lattice radiation” Anand Mahadevan, MD, Geisinger
11:10 – 11:45 Open Forum/Q&A

11:45am – 1:15pm Varian Hosted Lunch
FLASH Therapy – Potential Paradigm Shift in Cancer Treatment by Dr. Deepak Khuntia
Q & A

1:30 – 2:30pm Microbeam Therapy - Moderators: Sha Chang, PhD and Pantaleo Romanelli, MD
1:30 – 1:45 “Combined Preclinical Studies using Microbeam Radiation Therapy” Valentin Djonov, MD, Univ of Bern
1:45 – 2:00 "Immune modulation with Radiation-Is it a hoax? Results of Phase III study with mini (micro) beam treatment of canine brain tumor.” Vijayananda Kundapur, MD, Canada
2:00 – 2:15 “Should peak dose be used to prescribe spatially-fractionated radiation therapy treatment?” Sha Chang, PhD, Univ of North Carolina
2:50 – 2:30  Open Forum/Q&A

2:30 – 2:45pm  Break/Discussion

2:45 – 4:45pm  FLASH Therapy - Moderators: Billy Loo, MD and Charlie Limoli, PhD
   2:45 – 3:10  "The evolving saga of FLASH radiotherapy: An effective treatment against glioblastoma that minimizes neurocognitive side effects" Charlie Limoli, PhD, UC Irvine, Marie-Catherine Vozenin, PhD, HDR, University of Lausanne
   3:10 – 3:35  “The path to clinical translation of FLASH.” Billy Loo, MD, PhD, DABR, Stanford School of Medicine
   3:35 – 4:00  “FLASH RT Clinical translation - the physics perspective.” Peter Maxim, PhD, University Indiana, Claude Bailat, PhD, CHUV
   4:00 – 4:10  “Emerging Clinical Trial Concepts in FLASH Therapy” Charles Simone, MD, New York Proton Center
   4:10 – 4:45  Open Forum/Q&A

4:45 – 5:15pm  Next Steps, Trials and Open Discussion

5:15 – 5:30pm  Closing Remarks - Nina Mayr, MD, FASTRO, FAAAS, University of Washington, Dept. Radiation Oncology

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