

# Advancements in GRID, LATTICE and FLASH Radiotherapy Symposium



*In conjunction with the Radiosurgery Society® Scientific Meeting held on  
March 3, 2022, at Omni Hotel, La Costa, CA*

The symposia will focus on the proposed mechanisms of action and strategies for clinical translation of the novel unconventional spatial-fractionated and dose-rate modification modalities of GRID and LATTICE radiotherapy, and FLASH radiotherapy. Clinical translation sections will focus on developing a consensus approach to clinical utilization and for clinical trial design. A practical planning workshop will be included to walk both inexperienced and experienced users of these modalities through the clinical and physics considerations of delivering these modalities. Mechanisms for synergism of these techniques with other modalities such as immunotherapy, conventionally fractionated radiotherapy, and proton therapy will be discussed.

**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 and FLASH radiotherapy to share most current knowledge and new scientific results.
- Define challenges of GRID, LATTICE, and FLASH radiotherapy for clinical translation aimed at improving radiation delivery and clinical care.
- Develop clinical studies using GRID, LATTICE 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

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

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

Majid Mohiuddin, MD, Medical Director, Radiation Oncologist, Northwestern Chicago Proton Center and Lutheran General Hospital, Parkridge, IL

Charles B. Simone, II, MD, FACRO, Professor and Chief Medical Officer, New York Proton Center and Memorial Sloan Kettering Cancer Center, New York, NY

James (JW) Snider, MD, Associate Professor, Dept. of Radiation Oncology, University of Alabama at Birmingham, Birmingham, AL

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 University Feinberg School of Medicine, Northwestern Memorial Hospital, Chicago, IL

**Advancements in GRID, LATTICE and FLASH Radiotherapy Symposium  
March 3, 2022**

**7:45 - 8:00 AM    Opening Remarks - “Emerging Modalities”**

Presenters: C. Norman Coleman, MD, Radiation Research Program, National Cancer Institute, National Institutes of Health and Mansoor Ahmed, MD, Radiation Research Program, National Cancer Institute, National Institutes of Health

**8:00 - 9:15 AM    GRID Therapy**

Moderator: James (JW) Snider, MD, Associate Professor, Dept. of Radiation Oncology, University of Alabama at Birmingham, Birmingham, AL

SESSION OBJECTIVES

- To summarize clinical utilization and evaluate clinical outcomes to date with GRID Therapy
- To evaluate radiobiologic rationale and effects of GRID therapy
- To detail the physics considerations/challenges in delivery and quality assurance around GRID Therapy

**8:00 - 8:15    Peaks and Valleys: What May or May Not be Important for the Successful Use of the Biological Response to Spatially Fractionated Radiotherapy**

Presenter: Robert J. Griffin, PhD, Professor and Director, Radiation Biology Division, University of Arkansas for Medical Sciences, Dept. of Radiation

**8:15 - 8:30    Spatially Fractionated (GRID) Radiotherapy for High-Risk Soft Tissue Sarcoma: An Illustrative, Initial Clinical Experience**

Presenter: J.W. Snider, MD, University of Alabama at Birmingham, AL

**8:30 - 8:45    GRID Physics**

Presenter: Hualin Zhang, PhD, Northwestern University Feinberg School of Medicine, Northwestern Memorial Hospital, IL

**8:45 - 9:00    Clinical Trials in GRID Radiotherapy**

Presenter: Majid Mohiuddin, MD Northwestern Chicago Proton Center and Lutheran General Hospital, IL

**9:00 - 9:15    Open Forum/Question & Answer Session**

**9:15 - 10:30 AM    LATTICE Therapy**

Moderators: Majid Mohiuddin, MD, Northwestern Chicago Proton Center and Lutheran General Hospital, IL and J.W. Snider, MD, University of Alabama at Birmingham, AL

SESSION OBJECTIVES

- To summarize clinical utilization and evaluate clinical outcomes to date with LATTICE Therapy
- To evaluate radiobiologic rationale and effects of LATTICE therapy
- To detail the physics considerations/challenges in delivery and quality assurance around LATTICE Therapy

**9:15 - 9:30    GRID to LATTICE: More Tools in the Toolbox**

Presenter: Sina Mossahebi, PhD, University of Maryland School of Medicine, MD

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9:30 - 9:45 **Clinical Applications of LATTICE: The Innovative Cancer Institute Experience**  
Presenter: Beatriz Amendola, MD, Innovative Cancer Institute, FL

9:45 - 10:00 **Clinical exploitation of bystander effect in treatment of large tumors using carbon-ions: high-dose partial tumor irradiation**  
Presenter: Tubin Slavisa, MD, MedAustro Center for Ion Therapy and Research, Austria

10:00 - 10:15 **Practical Clinical Trials in Lattice radiation**  
Presenter: Anand Mahadevan, MD, Geisinger Health, PA

10:15 - 10:30 **Open Forum/Question & Answer Session**

### 10:30 - 11:45 AM FLASH Therapy

Moderators: J.W. Snider, MD, University of Alabama at Birmingham, AL and Arpit Chhabra, MD, New York Proton Center, NY

#### SESSION OBJECTIVES

- To summarize clinical utilization and evaluate clinical trials/clinical trial designs to date with FLASH Therapy
- To evaluate radiobiologic rationale and effects of FLASH therapy
- To detail the physics considerations/challenges in delivery and quality assurance around FLASH Therapy

10:30 - 10:45 **The Evolving Saga of FLASH Radiotherapy: An Effective Treatment against Glioblastoma that Minimizes Neurocognitive Side Effects**  
Presenter: Charlie Limoli, PhD, University of Irvine, CA

10:45 - 11:15 **Emerging Clinical Trial Concepts in FLASH Therapy**  
Presenter: Charles B. Simone, II, MD, New York Proton Center, NY

11:15 - 11:45 **Practical Aspects for FLASH Therapy**  
Presenters: Charles B. Simone, II, MD, New York Proton Center and Memorial Sloan Kettering Cancer Center, NY and Minglei Kang, PhD, New York Proton Center, NY

11:45 - 12:00 **Open Forum/Question & Answer Session**

### 12:00 - 1:30 PM Varian Hosted Lunch with FLASH Presentation

12:15 - 12:45 **Latest updates on FLASH. Translation from biology to clinic**  
Presenter: Deepak "Dee" Khuntia, MD, FASTRO, Senior Vice President, Medical Affairs & Chief Medical Officer

12:45 - 1:15 **Discussion/Question & Answer Session**

1:15 - 1:30 **Break**

### 1:30 - 2:30 PM Proton GRID/LATTICE Therapy

Moderators: James (JW) Snider, MD, Associate Professor, Dept. of Radiation Oncology, University of Alabama at Birmingham, Birmingham, AL and Charles B. Simone, II, MD, FACRO, Professor and Chief Medical Officer, New York Proton Center and Memorial Sloan Kettering Cancer Center, New York, NY

# Advancements in GRID, LATTICE and FLASH Radiotherapy Symposium

## March 3, 2022

### SESSION OBJECTIVES

- To summarize clinical utilization and evaluate clinical outcomes to date with Proton GRID Therapy
- To evaluate radiobiologic rationale and effects of Proton GRID therapy
- To detail the physics considerations/challenges in delivery and quality assurance around Proton GRID Therapy

1:30 - 1:45      **Clinical Utilization of Proton GRID (Beamlets)**  
Presenter: Jason Molitoris, MD, University of Maryland, MD

1:45 - 2:00      **Emerging Techniques in Proton GRID/LATTICE**  
Presenter: Arpit Chhabra, MD, New York Proton Center, NY

2:00 - 2:15      **Physics Considerations in Proton GRID/LATTICE**  
Presenter: Sina Mossahebi, PhD, University of Maryland School of Medicine, MD

2:15 - 2:30      **Open Forum/Question & Answer Session**

**2:30 - 4:00 PM Practical Aspects of GRID and Lattice Treatment Planning & Delivery**  
Moderator: James (JW) Snider, MD, Associate Professor, Dept. of Radiation Oncology, University of Alabama at Birmingham, Birmingham, AL

### SESSION OBJECTIVES

- To demonstrate clinical principles and practical planning tips for GRID Therapy
- To demonstrate clinical principles and practical planning tips for LATTICE Therapy
- To demonstrate clinical principles and practical planning tips for Proton GRID Therapy
- To demonstrate clinical principles and practical planning tips for FLASH Therapy

2:30 - 3:00      **Practical Aspects for GRID Therapy**  
Presenter: Jason Molitoris, MD, University of Maryland, MD

3:00 - 3:30      **Practical Aspects for LATTICE Therapy**  
Presenters: Beatriz Amendola, MD, Innovative Cancer Institute, FL, and Naipy Perez, MS, Innovative Cancer Institute, FL

3:30 - 4:00      **Practical Aspects for Proton GRID Therapy**  
Presenters: J.W. Snider, MD, University of Alabama at Birmingham, AL and Sina Mossahebi, PhD, University of Maryland School of Medicine, MD

4:00 - 4:30      **Open Forum/Question & Answer Session/Next Steps**

**4:30 - 4:45 PM Closing Remarks**  
Presenter: Charles B. Simone, II, MD, FACRO, Professor and Chief Medical Officer, New York Proton Center and Memorial Sloan Kettering Cancer Center, New York, NY