



# Grid, Lattice, Flash & Microbeam Radiotherapy Working Group

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## Facts & Enrollment Information

### About the Grid, Lattice, Flash & Microbeam Radiotherapy Working Group

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- In August 2018, The National Cancer Institute (NCI) in collaboration with The Radiosurgery Society made a converged, collaborative effort in organizing a workshop addressing various clinical and scientific facets of GRID, LATTICE, FLASH-radiotherapy that will conduct research with the goal of clinical advancement. To further the collective goals of this workshop, three working groups (clinical, physics and biology) were formed to progress the understanding of ultra-high-dose rate and microbeam radiotherapy by addressing the goals below:

#### Goals

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1. Exploring delivered treatments and result expectation with “log-kill” hypothesis of delivering 10-20 Gy.
2. Gauging the ideal distribution, dosage and dose rate for the desired results.
3. Defining the biological underpinning and the mechanisms of actions by exploring the challenges and issues on the use of pre-clinical models and physical dosimetry.
4. Exploring the issues of hypoxia and angiogenesis in understanding bystander and abscopal events in pre-clinical models.
5. Exploring Abscopal events and partial tumor volume irradiation to determine if there is a risk of underdosage and local failure.
6. Determining challenges in combining high-dose spatial fractionation with conventional chemo-radiotherapy, molecular targeted therapy and immunotherapy.
7. Addressing the issues of normal tissues damages.
8. Explore and proffer solutions related to challenges and issues in designing clinical trials.
9. Exploring Radiation delivery challenges and issues (Photon, Proton and Carbon) in generating effective spatial fractionation.

# GRID, LATTICE, FLASH & MICROBEAM RADIOTHERAPY WORKING GROUP

## Facts & Enrollment Information

10. Dosimetry and delivery challenges in ultra-dose rate and high-dose radiation.

## GLFM WG Chairpersons

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### Clinical subgroup:

Charles Simone, MD. (Memorial Sloan Kettering Cancer Center, csimone@nyproton.com)

Mohammed Mohiuddin, MD. (Phoenix, AZ, asemuddin@gmail.com)

Nina Mayr, MD. (University of Washington, Seattle, ninamayr@uw.edu)

### Physics subgroup:

Xiaodong Wu, PhD. (SPHIC, Shanghai, drxiaodongwu@yahoo.com)

Hualin Zhang, PhD. (Northwestern Memorial Hospital, Chicago, HZHANG@nm.org)

### Biology Subgroup:

Robert Griffin, PhD. (University of Arkansas, RJGriffin@uams.edu)

Charles Limoli, PhD. (UC Davis, climoli@uci.edu)

Soren Bentzen, PhD. (University of Maryland, SBentzen@som.umaryland.edu)

## Teleconference Schedule

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- The GLFM meets virtually via the WebEx platform once a month as follows:
  - **GRID Biology**– Meeting dates pending.
  - **GRID Physics** – Every 2<sup>nd</sup> Wednesday of the Month, 2:00pm –3:00pm ET.
  - **GRID Clinical** – Every 2<sup>nd</sup> Monday of the Month, 2:00pm – 3:00pm ET.
- The group membership is approximately 130.

## Activities and Accomplishments

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### Publications

1. C.N. Coleman, M.M. Ahmed, Implementation of New Biology-Based Radiation Therapy Technology: When Is It Ready So "Perfect Makes Practice?", Int J Radiat Oncol Biol Phys, 105 (2019) 934-937.
2. R.J. Griffin, M.M. Ahmed, B. Amendola, O. Belyakov, S.M. Bentzen, K.T. Butterworth, S. Chang, C.N. Coleman, V. Djonov, S.C. Formenti, E. Glatstein, C. Guha, S. Kalnicki, Q.T. Le, B.W. Loo, Jr., A. Mahadevan, M. Massaccesi, P.G. Maxim, M. Mohiuddin, M. Mohiuddin, N.A. Mayr, C. Obcemea, K. Petersson, W. Regine, M. Roach, P. Romanelli, C.B. Simone, 2nd, J.W. Snider, D. Spitz, B. Vikram, M.C. Vozenin, M. Abdel-Wahab, J. Welsh, X. Wu, C.L. Limoli, Understanding High-Dose, Ultra-High Dose-Rate and , Spatially Fractionated Radiotherapy, Int J Radiat Oncol Biol Phys, (2020).

## Interested in becoming a member of the GLFM?

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- Please Contact the Working Group Coordinator:

**Masoor M. Ahmed, PhD.**

National Cancer Institute

Division of Cancer Treatment & Diagnosis

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