

Department of Radiation Oncology

Monthly Research Update: June 2022

Maryland at AAPM 2022

Department of Radiation Oncology members are presenting their research in a broad range of educational and other forums at the 64th annual meeting of the American Association of Physicists in Medicine (AAPM), July 10–14 in Washington, DC. With almost 50 presentations and additional service on panels and in other sessions, the department is well represented across its many areas of research and practice implementation. The theme of this year's meeting is "Celebrating medical physics, transforming human health."

"We are all pleased to be back in-person at AAPM, with such strong representation from across all areas of our department," said **Amit Sawant, PhD**, Vice Chair for Medical Physics. "Our abstracts include 14 oral and snap oral presentations, an indicator of recognition of the innovative research being conducted by our faculty and trainees." Dr. Sawant serves as the 2022 AAPM Therapy Scientific Track Director. **Phuoc Tran, MD, PhD**, is moderating a scientific symposium on "Radiotherapy and the immune system," **Arezo Modiri, PhD**, is co-moderating a session on "Outcome-driven and risk-adapted personalized treatment planning," **Sina Mossahebi, PhD**, is co-moderating a session on "Space-time modulation of treatment," **Lei Ren, PhD**, is co-moderating a session on "Virtual clinical trials," and **Esther Vicente, PhD**, is co-moderating a session on "Advances in anatomic, biologic, and functional image guidance."

Dr. Sawant was inducted as an AAPM Fellow at the meeting. **Søren Bentzen, PhD, DMSc**, was named as the 2022 Anne and Donald Herbert Distinguished Lecturer in Statistical Modeling, speaking on "Models and modeling in radiation oncology: What's next?"

The 2023 AAPM meeting will be held in Houston, TX.

Clinical Trial Enrollment

- 21 patients were enrolled at MPTC on the **PCG Registry**.
- 1 patient was enrolled at MPTC on the **Deep Thermal Therapy HUD**.
- 1 patient was enrolled at Eastern Shore on **GCC 20110**: A single-arm, single-stage phase II trial of Selective Avoidance of nodal VolumEs at minimal Risk (SAVER) in the contralateral neck of patients with p16-positive oropharynx cancer.
- 2 patients were enrolled at MPTC on **GCC 19146**: Comparison and verification of radiation planning for pencil beam scanning proton therapy using single energy and dual energy computed tomography simulation methods.
- 1 patient was enrolled at BWMC on **GCC 19140**: Pilot study of laser interstitial thermal therapy followed by hypofractionated radiation therapy for recurrent high-grade gliomas.
- 1 patient was enrolled at Eastern Shore on **NRG BR007**: A phase III clinical trial evaluating de-escalation of breast radiation for conservative treatment of stage I, hormone sensitive, HER-2 negative, oncotype recurrence score less than or equal to 18 breast cancer.
- 2 patients were enrolled at MPTC on **GCC 2032**: Feasibility of strength training with androgen deprivation and proton therapy for high-risk prostate cancer.
- 1 patient was enrolled at MPTC on **RTOG 1308**: Phase III randomized trial comparing overall survival after photon versus proton chemoradiotherapy for inoperable stage II-IIIb NSCLC.

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Clinical trials

Total enrolled	30
GCC, other	7
NRG, NCI, co-ops	2
PCG Registry	21

Grants and contracts

New awards	0
Submitted	4

Articles published

8

Information for this monthly update should be provided no later than the second Wednesday of each month to Miek Segers at msegers@som.umaryland.edu. The update will be published on the second Friday of each month.

Have questions about identifying a funding source? Finding research partners across the UMB/UM campuses or at another university? Defining future research strategies? Or organizing your thoughts on (virtual) paper? Contact Nancy Knight, PhD, Director of Academic and Professional Development for the department, at nknight@umm.edu

Grants and Contracts

Submitted:

- **Jerimy Polf, PhD** (lead)/**Lei Ren, PhD** (multi PD/PI), to the NIBIB Academic–Industrial Partnerships for Translation of Technologies for Diagnosis and Treatment (R01, PAR-21-166) for “3-dimensional prompt gamma imaging for online proton beam dose verification” (\$2,851,445).
- **Arezoo Modiri, PhD** (lead)/**Pranshu Mohindra, MD** (multi PD/PI), to the National Cancer Institute (R01, PAR-20-185) for “Minimizing radiation-induced cardiotoxicity through prospective optimization of patient-specific survival model in radiotherapy planning” (\$2,077,425).
- **Esther Vicente, PhD** (PI), to the National Cancer Institute (R01, PAR-20-185) for “SMART lung SBRT/HFRT: Simulation-based modeling of airflow to reduce toxicity in lung stereotactic body radiotherapy and hypofractionated radiotherapy” (\$1,941,238).
- **Jerimy Polf, PhD** (lead)/**Hem Shukla, PhD** (multi PD/PI), to the UMGCCC FY23 Pilot Grant Program–Payline Program Awards for “Development of 3D metabolic imaging to measure response of human derived pancreatic organoids to radiation therapy and chemo-radiation therapy” (\$50,000).

Articles Published

Entered into PubMed June 9–July 6. Titles link to PubMed abstracts, where full-text links are available.

1. Esteva A, Feng J, van der Wal D, Huang SC, ... **Tran PT**, Spratt DE, Pugh S, Feng FY, Mohamad O. [Prostate cancer therapy personalization via multi-modal deep learning on randomized phase III clinical trials](#). *NPJ Digit Med*. 2022 Jun 8;5(1):71.
2. Jiang Z, Chang Y, Zhang Z, Yin FF, **Ren L**. [Fast four-dimensional cone-beam computed tomography reconstruction using deformable convolutional networks](#). *Med Phys*. 2022 Jun 17. Online ahead of print.
3. Khairnar R, DeMora L, Sandler HM, Lee WR, Villalonga-Olives E, Mullins CD, Palumbo FB, Bruner DW, Shaya FT, **Bentzen SM**, Shah AB, Malone S, Michalski JM, Dayes IS, Seaward SA, Albert M, Currey AD, Pisansky TM, Chen Y, Horwitz EM, DeNittis AS, Feng F, **Mishra MV**. [Methodological comparison of mapping the Expanded Prostate Cancer Index Composite to EuroQoL-5D-3L using cross-sectional and longitudinal data: Secondary analysis of NRG/RTOG 0415](#). *JCO Clin Cancer Inform*. 2022 Jun;6:e2100188.
4. **Kogan AA**, Topper MJ, **Dellomo AJ**, **Stojanovic L**, **McLaughlin LJ**, Creed TM, Eberly CL, Kingsbury TJ, Baer MR, Kessler MD, Baylin SB, **Rassool FV**. [Activating STING1-dependent immune signaling in TP53 mutant and wild-type acute myeloid leukemia](#). *Proc Natl Acad Sci U S A*. 2022 Jul 5;119(27):e2123227119.
5. Koroulakis AI, **Molitoris JK**, Sullivan M, Jiang Y, Hausner PF, Hanna N, Bafford A, Miller RC, **Regine WF**. [Radiation therapy and malignant fistulae of anorectal cancers](#). *Pract Radiat Oncol*. 2022 Jun 16:S1879-8500(22)00194-1. Online ahead of print.
6. Palmer JD, Prasad RN, Cioffi G, Kruchtko C, Zaorsky NG, Trifiletti DM, Gondi V, Brown PD, Perlow HK, **Mishra MV**, Chakravarti A, Barnholtz-Sloan JS, Ostrom QT. [Exposure to radon and heavy particulate pollution and incidence of brain tumors](#). *Neuro Oncol*. 2022 Jun 28:noac163. Online ahead of print.
7. Prasad RN, Perlow HK, Bovi J, Braunstein SE, Ivanidze J, Kalapurakal JA, Kleefisch C, Knisely JPS, Mehta MP, Prevedello DM, Raleigh DR, **Mishra MV**, Roberge D, Rogers CL, Palmer JD. [⁶⁸Ga-DOTATATE PET: The future of meningioma treatment](#). *Int J Radiat Oncol Biol Phys*. 2022 Jul 15;113(4):868–871.
8. Valencia Lozano I, Dedes G, Peterson S, Mackin D, Zoglauer A, Beddar S, Avery S, **Polf J**, Parodi K. [Comparison of reconstructed prompt gamma emissions using maximum likelihood estimation and origin ensemble algorithms for a Compton camera system tailored to proton range monitoring](#). *Z Med Phys*. 2022 Jun 21:S0939-3889(22)00060-5. Online ahead of print.

Important Dates for Upcoming Funding Submissions

Below is an updated calendar with firm due dates for upcoming major NIH deadlines (individual RFA/PA dates may differ). Contact the Department Office of Research Administration (DORA) (msegers@som.umaryland.edu) ASAP if you plan to submit any funding proposal, regardless of funder. Failure to meet these deadlines may result in delaying your submission until the next cycle (if available).

NIH deadline	DORA budget, prelim materials	Dean/SOM prelim materials	FINAL Dean/SOM/SPA
R01 new 10/05/22	09/21/22	09/26/22	09/28/22
R21 new 10/16/22	10/03/22	10/06/22	10/10/22
R01 resub 11/05/22	10/24/22	10/27/22	10/31/22
R21 resub 11/16/22	11/02/22	11/07/22	11/09/22