Meet the experts

Dr. Avery is a Professor of Radiation Oncology at the University of Pennsylvania. His research interests focus on quality assurance in proton therapy treatment delivery and increasing medical physics capacity for Global Health. Dr. Avery primarily provides medical physics clinical support for the Proton Center in the Department of Radiation Oncology. His assignments include commissioning of new treatment modalities, the development of planning techniques, machine/patient quality assurance, developing innovative detection methods, and other clinical medical physics work as needed.

Stephen Avery, PhD

Bridget Bieda has 27 years of experience in radiation oncology, including several years serving as a radiation therapist, chief therapist, and manager. Bridget has been in dosimetry since 2001. She has been a dosimetrist at Penn since 2008 and has been a member of the proton team since the inception of the proton program.

Bridget Bieda, MBA, CMD, RT(T)(R)

Douglas Bollinger is a clinical proton physicist in the department of Radiation Oncology. His clinical responsibilities are cross coverage on photon, and proton and brachytherapy services. In addition, he is heavily involved in proton commissioning and oversees the proton beam data library and dose calculation algorithms. His research interests include HDR Prostate Brachytherapy, proton commissioning, and the role of AI in clinical practice.

Douglas Bollinger, MMP

Dr. Keith Cengel is a Professor in the Department of Radiation Oncology at the University of Pennsylvania and the Executive Director of the Penn Mesothelioma Program. Clinically, his focus is on innovative treatments for patients with thoracic and neuroendocrine cancers using photon and proton beam radiotherapy. He also leads the clinical and translational research program using radiation to treat cardiac arrhythmias. His translational lab has been funded by NIH, the DOD, and NASA to investigate the influence of physical/dosimetric radiation properties on normal tissue radiation effects. His current NIH funding is directed towards the study of mechanisms of normal tissue protection by ultra-fast dose rate "FLASH" proton radiotherapy.

Keith Cengel, MD, PhD

Meet the experts

Dr. Christodouleas is a radiation oncologist who is nationally recognized as an authority on the treatment of prostate and bladder cancers. His research interests focus on the use of new diagnostic and therapeutic technologies and how these can optimize cancer cure rates and decrease side effects of treatments.
He is also actively involved in the research of proton therapy and MR-guided radiation therapy.

John Christodouleas, MD

Dr. Lei Dong is a professor and director of the medical physics division at the Hospital of the University of Pennsylvania. A nationally recognized expert in image-guided radiation therapy and proton therapy, Dr. Dong co-authored more than 250 peer-reviewed articles and 15 book chapters.

Dr. Dong has participated in four major proton projects with roles in (1) the clinical workflow implementation at MD Anderson's first Hitachi synchrotron-based proton therapy system in 2005-2007; (2) implementing Varian's new ProBeam system at the Scripps Proton Therapy Center in 2011-2016; (3) PBS room upgrade of IBA double-scatter treatment rooms at Roberts Proton Therapy Center 2017-2021; (4) commissioning Varian's new compact ProBeam360 system at two Penn Medicine network locations.
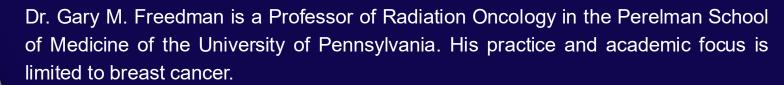
Dr. Dong served as a member of AAPM Science Council and a member of the education council for the Particle Therapy Co-Operative Group (PTCOG). He is also the physics co-PI on NIH sponsored program project (P01) on "Translational Studies in FLASH Particle Radiotherapy."

Lei Dong, PhD

Dr. Steven Feigenberg is a Professor and Thoracic Chief in the Department of Radiation Oncology at Penn Medicine. His clinical interests include the management of thoracic malignancies, with a special interest in stereotactic radiosurgery, stereotactic body radiotherapy, and the implementation of new technologies into the clinic including seminal articles on CT on railsTM and the GammapodTM, the 1st breast specific stereotactic delivery system. He was instrumental in developing the stereotactic body radiotherapy guidelines as part of the NCCN non-small cell lung cancer committee which was first published in 2010. His current research interest is in developing markers of radiation-associated normal tissue injury and implementing novel technologies in the management of lung cancer.

Steven Feigenberg, MD, FACRO

Dr. Gary M. Freedman is a Professor of Radiation Oncology in the Perelman School of Medicine of the University of Pennsylvania. His practice and academic focus is limited to breast cancer.

His research interests have been focused on shortening radiation courses by hypofractionation and concurrent boosts, proton beam radiation, cardiac effects of radiation therapy, and techniques to reduce cardiac and pulmonary dose in breast cancer. He has published over 100 peer-reviewed manuscripts, review articles and book chapters about breast cancer radiation therapy.

Gary Freedman, MD

Meet the experts

Elizabeth Garver is the chief physicist of the proton division in the Department of Radiation Oncology at the Hospital of the University of Pennsylvania. She received her Master of Medical Physics degree from the University of Pennsylvania where she also completed her medical physics training.

Her focus is on the daily practices in the proton therapy clinic including treatment planning and delivery support, staff and student training, and quality assurance methods.

Elizabeth Garver, MMP

Dr. Arun Goel is an assistant professor in Radiation Oncology at the University of Pennsylvania. He is a member of the genitourinary team. He is fellowship-trained in brachytherapy. His clinical work focuses on radiation therapy for localized, regional, metastatic, and recurrent prostate cancer. He employs IMRT, SBRT, HDR brachytherapy, and spacer lead at the Perelman Center at Penn. His research interests include toxicity outcomes following HDR brachytherapy external beam combo therapies.

Arun Goel, MD

Brett Hartl is an ABR board-certified medical physicist who has worked in the field for over 13 years. He has specialized in proton radiotherapy since 2014, with a focus on developing strategies for proton treatment planning. Brett is also heavily involved with training of students, residents, and other professionals entering the field of proton RT.

Brett Hartl, MMP, DABR

Dr. Christine Hill-Kayser is the Chief of the Pediatric Radiation Oncology Service and an Associate Professor of Radiation Oncology at Penn Medicine, as well as Editor-in-Chief of OncoLink and the OncoLife Survivorship Care Plan.

Her clinical work focuses on radiotherapy for treatment of pediatric brain and solid tumors, with emphasis on proton therapy. Dr. Hill-Kayser is the Chair of the Pediatric Proton Research Committee at the Children's Hospital of Philadelphia/Penn Medicine and the Radiation Discipline Representative for Neuroblastoma within the Children's Oncology Group. She serves on multiple national committees related to pediatric oncology and cancer survivorship, including the Pediatric Proton Collaborative Registry, National Comprehensive Care Network, and PENTEC (Pediatric Normal Tissue Effects in the Clinic).

Her research interests include pediatric radiation oncology, survivorship, and use of proton therapy to minimize late effects of radiotherapy and improve quality and quantity of life for cancer survivors.

Christine Hill-Kayser, MD

Meet the experts

Paul James is the Lead Dosimetrist of Protons. Paul received his Bachelor's Degree from Misericordia University and his Master's Degree from Widener University. He has been employed at the Hospital of the University of Pennsylvania for over 20 years, first as a therapist, then in simulation and dosimetry.

Paul James, CMD

Dr. Alireza Kassaee is an Associate Professor of Clinical Radiation Oncology in the Department of Radiation Oncology at the University of Pennsylvania Perelman School of Medicine. Dr. Alireza Kassaee holds a BS in Electrical Engineering and PhD in Physics from the State University of New York at Buffalo. His research interests include proton, photon, and electron clinical beam dosimetry; protoacoustics method for in vivo proton range verifications; and proton treatment planning. His clinical responsibilities include proton, photon, and electron clinical radiotherapy and dosimetry measurements; and machine acceptance, commissioning, quality assurance and quality control in radiotherapy. He is certified by the American Board of Radiology. Dr. Kassaee co-teaches Radiation Detection and Measurement and serves on the Curriculum Committee.

Alireza Kassaee, PhD

Dr. Karishma Khullar is an Assistant Professor of Radiation Oncology at the Perelman Center for Advanced Medicine at the University of Pennsylvania. She completed her undergraduate studies at the University of Pennsylvania where she graduated Magna Cum Laude with a degree in Health and Societies. She earned her medical degree at the University of Cincinnati College of Medicine. She completed her transitional year internship at Henry Ford Hospital in Detroit, MI followed by residency in radiation oncology at the Rutgers Cancer Institute of New Jersey, where she served as Chief Resident.

Her clinical research interests include understanding and mitigating cancer care disparities, and her research has resulted in several publications and oral presentations at national radiation oncology conferences.

Karishma Khullar, MD

Dr. Alexander Lin is the Morton M. Kligerman, MD Endowed Professor of Radiation Oncology and Vice Chair of Faculty Affairs in the Department of Radiation Oncology at the Perelman School of Medicine of the University of Pennsylvania. He is actively engaged in both clinical and translational research, which has been funded by NIH grants since 2014. Dr. Lin earned his BA from Yale University and his MD at the University of Michigan, where he also completed his residency. He joined the University of Pennsylvania in 2009.

Dr. Lin's clinical work centers on using radiation therapy to treat patients with head and neck cancers. Similarly, his research has focused on innovative approaches to precision head and neck radiotherapy, such as dose de-escalation for patients with favorable prognoses. He has also studied combining novel drugs that can modulate the tumor microenvironment to increase the efficacy of radiation in those with radioresistant disease. More recently, he has been investigating the use of ultra-high dose rate (FLASH) proton radiation to improve the therapeutic ratio of treatment; he is actively involved in clinical trials to study this approach.

Alexander Lin, MD

Meet the experts

Dr. Robert Lustig graduated from Jefferson Medical College followed by 2 years of internal medicine training at New York Medical College. He completed 2 years in the United States Navy as a general medical officer followed by a residency in Radiation Oncology at Thomas Jefferson University Hospital. He initially practiced at Cooper Hospital University Medical Center and came to Radiation Oncology at the University of Pennsylvania in 1998. He has since specialized in the treatment of adult and pediatric brain tumors. He has also served as the Chief of Clinical Operations for the department.

Robert Lustig, MD

Dr. Richard Maughan graduated from the University of Birmingham, England with an honors degree in physics in 1970 and a Ph.D. in Nuclear Physics at the same institution in 1974. From 1974 to 1983 he worked as a member of the scientific staff of the Cancer Research Campaign Gray Laboratory at Mount Vernon Hospital in England, where he was involved in basic radiation physics, chemistry, and biology research. From 1983 to 2000, he was on the faculty at Wayne State University in Detroit developing a superconducting cyclotron for neutron radiation therapy.

In July 2000, Dr. Maughan moved to the University of Pennslyvania as the Director of Medical Physics. He was a key member of the team developing and installing the Roberts Proton Therapy Center, participating in the specification of the system, vendor selection, and overseeing acceptance and commissioning. He retired in 2016 and continues working part-time, as Emeritus Professor, on proton therapy educational and development projects.

Richard L. Maughan, PhD

Meghan Minner is a Radiation Therapist at the Hospital of the University of Pennsylvania in the Department of Radiation Oncology and is a Proton Therapy Educator for OncoLink. She completed her Bachelor's degree in Radiation Therapy at Gwynedd-Mercy University in Gwynedd-Valley, PA. She has eleven years of experience in radiation therapy working in all modalities and specializing in protons. Meghan has worked as a charge therapist and is also an ARIA super-user. Her current focus is on departmental process improvements and workflow efficiencies.

Meghan Minner, B.S. RT(T)

Courtney Misher is a Radiation Therapist at the Hospital of the University of Pennsylvania in the Roberts Proton Therapy Center, as well as the Global Education Coordinator for OncoLink. She completed her Bachelor of Science degree in Radiation Therapy from Indiana University and received her Master of Public Health degree from Benedictine University with concentrations in Health Management and Policy, and Health Education and Promotion. She has seventeen years of experience in radiation therapy, which includes expertise in proton therapy.

Courtney Misher, MPH, BS R.T.(T)

Meet the experts

Evgenia Nigay is a Certified Medical Dosimetrist with 6 years of experience. She graduated from University of Wisconsin's Medical Dosimetry program with a Master of Science Degree in 2017 and joined Penn Medicine in 2021. Her focus has been on proton planning for the past 2 years.

Evgenia Nigay, MS, CMD

Dr. Shannon O'Reilly is an Assistant Professor of Radiation Oncology and proton therapy physicist at the University of Pennsylvania. Dr. O'Reilly earned her BS in Nuclear Engineering and an MS and PhD in Biomedical Engineering (medical physics concentration) from the University of Florida. Dr. O'Reilly's research interests include implementation of DECT for proton therapy, functional imaging, Monte Carlo dosimetry, and reducing radiation-induced toxicities.

Shannon O'Reilly, PhD, DABR

John Plasteras, MD, PhD is a Professor in the Department of Radiation Oncology. He completed his undergraduate work at Emory University, earning 2 Bachelor's degrees and a Master's of Science in Chemistry in 4 years. He graduated from Vanderbilt University with dual MD/PhD degrees in 2002, after which he completed an Internship at Memorial Sloan-Kettering Cancer Center in New York. Dr. Plasteras subsequently performed his radiation oncology residency training at the University of Pennsylvania where he was a Holman Pathway Research Fellow.

In 2007, he joined the faculty at the University of Pennsylvania, specializing in the treatment of hematologic and gastrointestinal malignancies. He has served as the principle investigator of prospective trials using proton therapy for upper GI cancers, esophageal cancer, and for re-irradiation. He is currently the site PI for NRG GI-006, a randomized trial between IMRT and proton therapy for esophageal cancer. His team has pioneered the use of breath-hold and pencil beam scanned proton therapy for mediastinal lymphomas. Dr. Plastaras currently serves as the Vice Chair for Strategic Clinical Research for Radiation Oncology at Penn Medicine.

John P. Plastaras, MD, PhD

Julie Schrager is a Certified Medical Dosimetrist. She graduated from Thomas Jefferson University's Medical Dosimetry program in 2016. She worked at Christiana Care Hospital as a Medical Dosimetrist from 2016-2019. Julie has worked at Penn Medicine as a proton dosimetrist since 2019.

Julie Schrager, CMD

Meet the experts

Katie M. Shillington is a Medical Dosimetrist who has worked in radiation oncology for over twenty-five years, 14 years of which as a team member of proton dosimetry specializing in proton therapy breast planning. Katies is actively involved in teaching visitors, residents, and student dosimetrists.

**Katie Shillington,
BS RTT (R)(T)**

Dr. Neil K. Taunk is an Assistant Professor and Radiation Oncologist at the University of Pennsylvania. He is also the Director of Brachytherapy and Procedural Radiation, as well as the director of Imaging Sciences. He earned his MD and Masters in Clinical and Translational Sciences at Rutgers University. He finished residency at Memorial Sloan Kettering Cancer Center, where he completed post-doctoral research in molecular imaging and radionuclide therapy. Dr. Taunk's clinical interests are in molecular-guided radiation therapy, proton therapy, and brachytherapy. His research interests are in PET-guided radiation therapy and radionuclide therapy.

**Neil K. Taunk,
MD, MSCTS**

Dr. Kevin Teo is an Associate Professor in Radiation Oncology at the University of Pennsylvania. He is a key member of the imaging team for medical physics, responsible for implementing clinical imaging protocols and advance clinical initiatives to introduce new imaging modalities in the clinic. His research has focused on the applications of advanced imaging tools to improve quantification and reduce proton range uncertainties. This includes the deployment of the world's first gantry mounted cone beam computed tomography (CBCT) system for proton therapy, which introduced volumetric imaging for estimating inter-fraction treatment dose and enabled the use of CBCT in an adaptive proton therapy workflow.

Another notable work was the first clinical demonstration of the feasibility to use prompt gamma (PG) imaging for in vivo proton range verification which enabled the location of individual pencil beam spots within the patient to be imaged for the first time in proton therapy. PG imaging could be used to confirm proton range as well as identify changes in anatomy that leads to range deviations. At the University of Pennsylvania, Dr Teo implemented the use of dual energy CT (DECT) for proton planning and treatment with reduced range uncertainty margins.

Kevin Teo, PhD

Kimberly Watson is a Certified Medical Dosimetrist who has worked in the field for over 13 years. Kimberly started specializing in proton treatment planning in 2011.
She is also involved with the training of students, residents, and other professionals.

**Kimberly Watson, MHA,
CMD**