

Advanced Radiation Physics Fellowship for Proton Therapy

Purpose

The University of Texas M. D. Anderson Cancer Center Radiation Physics Advanced Training Fellowship is designed to provide additional clinical training and research experience for the Medical Physicist preparing for a professional career in the field of radiation oncology physics with a specialization in proton therapy physics.

Scope of the training program

The fellowship program is designed to further develop professional competence in the clinical physics service for the radiotherapy patients treated with proton beams, which is a very specialized technologically advanced modality. The number of institutions, which are acquiring proton systems, is increasing. The UT MDACC Proton Therapy Center at Houston (PTCH) is either providing patient care or engaged in program development activities for 6 days per week. PTCH is staffed by medical physicists for approximately 16 hours per day during the week and 10 hours on Saturday. (No training will be offered in photon or brachytherapy treatments during the first two years of the fellowship). Focused training in proton therapy physics will be provided through observation and direct participation in the clinical physics activities. The fellows will participate in technical aspects of patient care activities under the supervision of a licensed faculty or staff physicist. These activities include quality assurance testing, patient treatment simulation treatment planning, and review of patient positioning and initial set-up during special procedures. Furthermore, the proton physics fellows will contribute significantly to clinical research and development. In addition, the proton physics fellows will routinely perform testing of new treatment planning software, make measurements required for implementing new treatment techniques or implementing existing techniques on new machines, analyzing the effects of uncertainties in dose calculation on delivered dose to the patient. The proton physics fellows will regularly review and present clinically relevant papers and results of their research and development activities at the departmental seminars and at national conferences. Research projects and interdisciplinary clinics, as well as regular attendance at departmental and institutional conferences, symposia, research workshops and lecture series are all part of a well-rounded curriculum for the fellowship.

Duration of the training program

The program duration is one to three years depending on the background and interest of the trainees accepted into the program. The first year will be the focused training program in proton therapy physics. The optional second year and third year will be devoted for specialized research and developmental projects in proton therapy, and for additional training in other areas of radiation oncology physics that are complement to fellow's proton therapy projects. If substantial training in non-proton area is deemed to be necessary for the fellow to be eligible for ABR Certification in Therapeutic Radiological Physics, it will be arranged in the third year with available alternative pathways and funding sources.

Statement of need for this special training program

The current duration of two years for Radiation Medical Physics Residency program does not allow enough time for the specializing training in proton therapy physics, especially for participation in developmental activities. The focused additional one year training will provide the needed educational background, hands on training and experience in special proton therapy developmental projects for the trainee. A continuous supply of trained professionals in proton therapy physics will alleviate the shortage of such qualified physicists, which is expected to become an acute problem with the planned opening of many proton therapy centers in the near future. Fellowship program provides a smooth transition from residency program to a professional staff position with proton therapy responsibilities.

Qualification of candidates to be accepted to the proton fellowship program

A post-graduate degree in Physical or Engineering sciences with at least two years of residency or postdoctoral fellowship or on the job training in Radiation Physics.

Participating Faculty and Professional staff in the fellowship program

All faculty and staff physicists assigned to the proton therapy center will actively participate in the training of the fellows.

Ongoing research and developmental projects at PTCH for the fellows to participate

(a) NCI PO1 project on optimizing proton radiation therapy; (b) radiation dosimetry of spot scanning proton beam; (c) theoretical and experimental study of proton beam dosimetry in inhomogeneous media; (d) reduction of uncertainties in proton therapy; (e) quality assurance issues in proton therapy; (f) treatment plan optimization and evaluation; (g) developments in intensity Modulated proton Therapy and (h) developments in proton therapy for moving targets.

Inquiries should be directed to:

Narayan Sahoo, Ph.D., Program Director

nsahoo@mdanderson.org

The University of Texas M. D. Anderson Cancer Center

Department of Radiation Physics, Unit 94

1515 Holcombe Boulevard

Houston, TX 77030- 4009

Applicants will be required to meet all visa and documentation requirements. The University of Texas M.D. Anderson Cancer Center is a smoke-free EEO/ AA environment.