

The Science Council of the American Association of Physicists in Medicine is proud to announce a Symposium on the *Promises and Perils of Proton Radiotherapy*

May 8 – 9, 2009
Radisson Plaza Lord Baltimore
Baltimore, MD

Meeting Registration [now open](#).

The use of protons for radiation therapy offers theoretical advantages compared to external beam photon radiotherapy. Proton therapy enables lowering of the integral dose to the patient due to the finite range of protons. Protons also have a demonstrated advantage for treating small tumor volumes at shallow depths such as tumors of the eye and of the CNS such as chordomas and chondrosarcomas. Proton radiotherapy reduces the volume of normal tissue exposed to low doses, which is clinically significant with respect to the risk of second malignancies. This risk is notably more pronounced for younger patients than older ones, as younger patients are more at risk to future radiation induced cancers.

However, proton therapy is less tolerant than photon therapy to uncertainties in both treatment planning and treatment delivery. Tissue inhomogeneities, motion and mis-registration of the target volume with the radiation beams have far more severe consequences in proton therapy compared to photon therapy. If the target volumes are to be adequately irradiated, and adjacent OARs are to be protected in proton therapy, it is essential:

- that the causes and possible magnitudes of motion and mis-registration are understood;
- that their possible consequences are understood;
- that measures are taken to minimize motion and mis-registration to the extent possible and clinically warranted.

With the rapid proliferation of proton facilities in the United States, the Science Council of the AAPM put forth the need for a teaching symposium that would be informative for current and future practitioners of proton radiotherapy. International experts will discuss issues such as current clinical practice and machinery, future developments in delivery and planning, and operational startup and ongoing costs. Controversies related to planning and treatment uncertainties, the question of clinical trials, and biological questions such as RBE and secondary neutrons will also be presented.

At the end of this symposium, attendees will learn about the:

- State-of-the-art in proton therapy and future developments.
- Normal tissue sparing in proton therapy
- Potential sources of dosimetric uncertainties in proton therapy
- Impact of planning and delivery uncertainties on the accuracy and conformity of dose delivered to patients.
- Clinical evidence supporting proton therapy
- Challenges in conducting randomized clinical trials with proton therapy
- Comparative effectiveness of competing treatment modalities
- Startup and ongoing cost of proton therapy
- Secondary neutron issue

Target Audience:

The program is aimed at radiation oncologists, medical physicists, and biologists.