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Brachytherapy with an improved MammoSite Radiation Therapy System NANDA KARTHIK, CYNTHIA KEPPEL, VAHAGN NAZARYAN, Hampton University — Accelerated partial breast irradiation treatment utilizing the MammoSite Radiation Therapy System (MRTS) is becoming increasingly popular. Clinical studies show excellent results for disease control and localization, as well as for cosmesis. Several Phase I, II, and III clinical trials have found significant association between skin spacing and cosmetic results after treatment with MRTS. As a result, patients with skin spacing less then 7 mm are not recommended to undergo this treatment. We have developed a practical innovation to the MammoSite brachytherapy methodology that is directed to overcome the skin spacing problem. The idea is to partially shield the radiation dose to the skin where the skin spacing is less then 7 mm, thereby protecting the skin from radiation damage. Our innovation to the MRTS will allow better cosmetic outcome in breast conserving therapy (BCT), and will furthermore allow more women to take advantage of BCT. Reduction in skin radiation exposure is particularly important for patients also undergoing adjuvant chemotherapy. We will present the method and preliminary laboratory and Monte Carlo simulation results.

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