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An Active MammoSite© for Breast Cancer Treatment ALICE QUAN, Hampton University, CAMI COLLABORATION — Breast brachytherapy using the MammoSite© balloon catheter is one of the latest developments in breast cancer treatment and is the most performed method of brachytherapy. A high activity ^{192}Ir radioactive source is pushed inside the shaft of the device until it reaches the center of the balloon. The latest involvement of the Brachytherapy research group of the medical physics program at Hampton University is in the development of a scintillating fiber based detector for the breast cancer specific MammoSite© balloon catheter from Cytyc, Inc. During the summer 2006, data were acquired at a local hospital (Bon Secours DePaul Medical Center) to evaluate the possibility of measuring the source location and dose distribution during breast brachytherapy cancer treatments with this device. Two 0.5 mm^2 and 1.0 mm^2 scintillating fibers were used for these experiments. We used two modified MammoSite© devices, each housing an extra tubing within which the fibers were inserted. The results from these runs confirm the possibility of an active MammoSite© to monitor the location of the source as well its dose distribution during patient treatment. We will describe the experimental setup and discuss the data.

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