AbstractID: 1443 Title: Active Catheter for Breast Brachytherapy

Breast cancer is the most common form of cancer among women in the United States. A National Cancer Institute (NCI) report estimates that about 1 in 8 women in the United States (approximately 13.3% percent) will develop breast cancer during her lifetime. This estimate is based on cancer rates from 1997 through 1999, reported by the NCI's Surveillance, Epidemiology, and End Results (SEER) Program publication. Among the racial/ethnic groups studied by SEER, non-Hispanic White, Hawaiian, and Black women have the highest levels of breast cancer risk. Breast Brachytherapy is an internal radiation treatment involving the implantation of radioactive seeds into the tumor itself. The most recently published study from the Journal of the National Cancer Institute documents a local recurrence rate of 1.0% at five-year follow-up, similar to that seen in a group of patients treated with external beam radiation. The *Balloon catheter brachytherapy* is one of the latest advances in the treatment of breast cancer and is currently the most widely practiced method of brachytherapy. As for any other brachytherapy treatment, there is currently no existing device that gives interventional cardiologists or radiation oncologists the capability to measure in-vitro the effective dose delivery to patients. A very preliminary study of a device based on making the catheter used for source delivery as an active device, i.e., a scintillating fiber was performed. The results from this study will be presented.