

# Florida Tech scientist wins patent for device to deliver X-ray irradiation

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Florida Tech and Dr. Kunal Mitra, Florida Tech associate professor of mechanical and aerospace engineering, have just been assigned a U.S. patent for an x-ray delivery device which can be used for arterial irradiation following balloon angioplasty. The methodology can prevent the frequent re-formation of plaque after angioplasty and stent implantation.

Dr. Mitra began development of his process in a Food and Drug Administration laboratory in Rockville, Md. in 2002. He became associated during the development with Dr. Charles R. Lambert, former director of the Health First Heart Institute. Lambert's name is also on the patent.

Angioplasty and stents are typically used to open up blocked arteries and keep them open. Arteries, however, can become reclogged by plaque build-up, causing health risk and necessitating further surgery.

"I became interested in this work while reading about research going on to implant radiation sources within the body. With radiation from an external source, the dosage can be more easily adjusted and controlled and the procedure is much safer," said Mitra.

The patented process delivers x-ray irradiation using hollow waveguides to an artery to mitigate plaque reoccurrence. The energy can be precisely delivered, reducing potential damage to nearby normal tissue during exposure. Moreover, x-rays have higher penetrating power than optical

waves, as in laser therapy. Similarly, Mitra's methodology can deliver precise radiation as a medical therapy to shrink tumors.

Source: Florida Institute of Technology

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