



## Biography

Dr. Mitchell Swartz



Dr. Mitchell Swartz trained at the Massachusetts Institute of Technology [Dept EECS (MSEE, EE and ScD) electrophysics, semiconductor physics, biomedical engineering, dielectric spectroscopy of water] and Harvard Medical School, (MD), and then served a surgical internship and residency (radiation oncology, nuclear physics, Massachusetts General Hospital).

He invented electrophotodynamic therapy, fabricated the first bioelectronic MEMs and resettable microelectrooptical gas and small molecule detectors, and contributed to the development BID, intraoperative, proton beam, and sandwich-type radiotherapy and the use of dual photon time-of-flight image imaging (PET) for the measurement of regional blood flow, and oxygen and glucose utilization.

After the 1989 cold fusion announcement, Dr. Swartz turned to the study of heavy water, and proposed the Quasi-One-Dimensional Model of Deuteron flow which led to understanding successful cold fusion ("1-electrolysis"), codeposition, the PHUSON explanation for the coherent coupling of the lattice facilitated by phonons explaining the absence of neutrons and penetrating ionizing radiation, the possible role of the weak force, the role of catastrophic hydrogen redistribution (CAM model), and the proposed possible de novo deuterium production from Ni experiments (1996).

Experimentally, Dr. Swartz documented the impact of D addition in Ni, the ubiquity of OOP operation, the improvements of metamaterials and OOP-linked near-IR emissions and pericathodic photosensitivity, and avalanche electrical breakdown in ZrO<sub>2</sub>-Pd nanomaterials. At JET Energy, Inc., he has fabricated CF/LANR PHUSORS, NANORS, transistors, two of which were openly demonstrated at MIT [aqueous PHUSOR®, x5 days in 2003, COP 2.3-2.7; dry, preloaded NANOR® x4 months in 2012, COP 7-19]. Several patent applications have been filed and two patents have issued to date.

To improve quality assurance, Dr. Swartz developed several new types of controls and corrections for errors, including vertically-directed low-flow calorimetry, and stressed the importance of multiple detector verifications and thermal waveform reconstruction. Since 1991, he has run several Colloquia and other educational seminars on CF/LANR at MIT.

