



SIMON R. CHERRY

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[Cherry Lab](#)
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PERSONAL EDUCATION

Ph.D. in Medical Physics, University of London, United Kingdom 1989

AFFILIATION

[Center for Molecular and Genomic Imaging](#)
Biomedical Engineering Graduate Group

RESEARCH INTEREST

Molecular Imaging, Technology Development:
Simon Cherry's research involves the rapidly growing field of molecular imaging. The basic concept behind molecular imaging is the use of non-invasive imaging technologies to visualize and characterize specific molecular events and targets in vivo. Areas of active research include the development of new and improved imaging technologies, the design of novel contrast agents and imaging probes and their application in molecular diagnostics and therapeutics. Professor Cherry and the members of his laboratory team are particularly interested in developing new technologies and techniques for in vivo molecular imaging. They focus on a nuclear imaging technique, positron emission tomography (PET), and its application in studying animal models of human disease. They are also exploring the integration of PET

imaging technology with the high-resolution anatomical imaging provided by magnetic resonance imaging (MRI) or x-ray computed tomography (CT). The use of molecular imaging technologies for phenotyping and for the development and validation of new drugs and therapeutic approaches are among the applications they are pursuing. The research group has many active projects in the laboratory, ranging from the development of new detector technologies for imaging to the building of complete imaging systems for specific biological or medical applications. The research associated with these projects involves novel detector development; system simulation and design; the investigation of data acquisition and correction strategies; the study of three-dimensional image reconstruction algorithms; new software tools for the visualization, analysis, and quantification of imaging data; and the application of molecular imaging technologies to important problems in medicine and biology.

RESEARCH FACILITY

[Dr. Cherry's Lab](#)

RESEARCH PAPERS

Zavattini G, Vecchi S, Mitchell G, Weisser U, Leahy RM, Pichler BJ, Smith DJ, Cherry SR. A hyperspectral fluorescence system for 3D in vivo optical imaging. *Phys Med Biol* 2006; 51: 2029-2043.

Yang YF, Dokhale PA, Silverman RW, Shah KS, McClish MA, Farrell R, Entine G, Cherry SR. Depth of interaction resolution measurements for a high resolution PET detector using position sensitive avalanche photodiodes. *Phys Med Biol* 2006; 51: 2131-2142.

Cherry SR. The 2006 Henry N. Wagner Lecture: Of Mice and Men (and Positrons) – Advances in PET imaging technology. *J Nucl Med* 2006; 47: 1735-1745.

Catana C, Wu Y, Judenhofer MS, Qi J, Pichler BJ, Cherry SR. Simultaneous acquisition of multislice PET and MR images: initial results with a MR-compatible PET scanner. *J Nucl Med* 2006; 47: 1968-1976.

Tarantal AF, Lee CCI, Jimenez DF, Cherry SR. Fetal gene transfer using lentiviral vectors: In vivo detection of gene expression by microPET and optical imaging in fetal and infant monkeys. *Hum Gene Ther* 2006; 17: 1254-1261.

Stickel JR, Qi J, Cherry SR. Fabrication and characterization of a 0.5-mm lutetium oxyorthosilicate detector array for high-resolution PET applications. *J Nucl Med* 2007; 48: 115-121.

Liang H, Yang Y, Yang K, Wu Y, Boone JM, and Cherry SR. A microPET/CT system for in vivo small animal imaging. *Phys Med Biol* 2007; 52: 3881-3894.

Du HN, Yan YF, Cherry SR. Measurements of wavelength shifting (WLS) fibre readout for a highly multiplexed, depth-encoding PET detector. *Phys Med Biol* 2007; 52: 2499-2514.

REVIEW ARTICLES

Cherry SR. In vivo genomic and molecular imaging: new challenges for imaging physics. *Phys Med Biol* 2004; 49: R13-48.

Cherry SR. Multimodality in vivo imaging systems: Twice the power or double the trouble? *Ann Rev Biomed Eng* 2006; 8: 35-62.

TEXTBOOK

Cherry SR, Sorenson J, Phelps ME. *Physics in Nuclear Medicine*. 3rd Edition, W.B. Saunders, New York, 2003.

MAJOR RESEARCH INTEREST

Molecular imaging technology, particularly positron emission tomography, multi-modality imaging systems, gamma and x-ray detector technology, 3-D image reconstruction and use of imaging techniques in phenotyping and drug development.

