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Editorial board member

Zhen Yuan

Biography

Dr. Yuan is an assistant professor and Director of Biomedical Imaging Core with Faculty of Health Sciences at University of Macau (UM). Before joined UM, he had worked as a research assistant professor in the Biomedical

His academic investigation is focused on cutting-edge research and development in laser, ultrasound and EEG/fMRI-related biomedical technologies including biomedical imaging and signal processing/spectroscopy, biomedical optics, bioMEMS, computational science, neural engineering and nano medicine. He, as the principal or co-



Research Interests

Neurosciences and Neuroimaging Optical Molecular Imaging and Cancer

Publicat

- **Z. Yuan**, "Listening to light scattering in turbid media: quantitative optical scattering imaging using photoacoustic measurements with one-wavelength illumination," **J. Opt.**, 065301 (**2014**).
- Yin Tian, Shan Liang, **Z. Yuan** (Corresponding author), "White matter structure in loneliness: preliminary findings from diffuse tensor imaging," **Neuroreport**, 25(11), 843-847 (**2014**).
- J Zhang, **Z. Yuan** (Corresponding author), "Quantification of the power changes in bold signals using welch spectrum method during different single-hand motor imageries," **Magnetic Resonance Imaging** (2014).
- **Z. Yuan,** "A systematic investigation of CW reflection diffuse optical tomography using nonlinear reconstruction methods and CW measurements," **Biomedical Optics Express**, 5(9), 3011-3022 (**2014**)
- <u>Yin Tian</u>, Fali Li, Peng Xu, **Zhen Yuan** (corresponding author), Dechun Zhao, Haiyong Zhang, "Combining canonical correlation analysis and infinite reference for frequency recognition of steady-state visual evoked potential recordings: A comparison with periodogram method," <u>Bio-Medical Materials and Engineering</u> 24, 2901-2908 (**2014**).
- Yubin Liu, Zhifang Li, Hui Li and **Zhen Yuan**



Molecular imaging

A. Zerhouni, MD, former director of the National Institutes of Health, has described molecular imaging as having "...the potential to define itself as a core interdisciplinary science for extracting spatially and temporally resolved biological information at all physical scales from Angstroms to microns to centimeters in intact biological systems." (Eugene P. Pendergrass New Horizons Lecture, Radiological Society of North America meeting, 2007)(1). Even in its early stages of development, molecular imaging

Purpose

- 1)Noninvasively characterize the stages and progression of a disease process and establish signature biomarkers;
- 2) Assess the efficacy of standard or experimental treatment modalities in small-animal models of human disease;
- 3) Characterize the trafficking of stem cells and immune cells;
- 4) Analyze the biodistribution of drugs and the dynamics of drug/receptor interactions;
- 5) Investigate the cellular and subcellular basis of brain disorders;
- 6) Assess metabolic changes, particularly in the brain, heart and tumors;
- 7) Detect tissue hypoxia.



Molecular imaging techniques

Optical Molecular Imaging: Bioluminescence imaging, fluorescence imaging, optical coherence imaging and photoacoustic imaging.

SPECT.

PET.

MRI and CT.





