Journal Menu

- Abstracting and Indexing
- Aims and Scope
- Article Processing Charges
- Articles in Press
- Author Guidelines
- Bibliographic Information
- Contact Information
- Editorial Board
- Editorial Workflow
- Reviewers Acknowledgment
- Subscription Information

- Open Special Issues
- Published Special Issues
- Special Issue Guidelines

Call for Proposals for Special Issues

International Journal of Biomedical Imaging
Volume 2006 (2006), Article ID 58601, 8 pages
doi:10.1155/IJBI/2006/58601

Abstract
Full-Text PDF
Linked References
How to Cite this Article

The First Bioluminescence Tomography System for Simultaneous Acquisition of Multiview and Multispectral Data

Ge Wang, Haiou Shen, Kumar Durairaj, Xin Qian, and Wenxiang Cong

Bioluminescence Tomography Laboratory, Department of Radiology, University of Iowa, 200 Hawkins Drive, Iowa City 52242, IA, USA

Received 21 July 2006; Revised 30 August 2006; Accepted 5 September 2006

Academic Editor: Ming Jiang

Abstract

We describe the system design of the first bioluminescence tomography (BLT) system for parallel acquisition of multiple bioluminescent views around a mouse in a number of spectral channels simultaneously. The primary component of this BLT system is a novel mirror module and a unique mouse holder. The mirror module consists of a mounting plate and four mirrors with stages. These mirror stages are right triangular blocks symmetrically arranged and attached to the mounting plate such that the hypotenuse surfaces of the triangular blocks all make 45◦ to the plate surface. The cylindrical/polygonal mouse holder has semitransparent rainbow bands on its side surface for the acquisition of spectrally resolved data. Numerical studies and experiments are performed to demonstrate the feasibility of this system. It is shown that bioluminescent signals collected using our system can produce a similar BLT reconstruction quality while reducing the data acquisition time, as compared to the sequential data acquisition mode.