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EDUCATION

- Ph.D., Biomedical Engineering, University of California, Irvine, 2006. Area of research: *Mathematical and experimental modeling of cancer growth, vascularization, and drug treatment.*
- M.S., Computer Engineering, University of California, Irvine. Field of study: *Algorithms, real-time embedded systems, and microprocessor architecture*.

EXPERIENCE

2016-present	Associate Professor, Dept. of Bioengineering, University of Louisville, KY
2011-present	Assistant Scientist, Brown Cancer Center, University of Louisville
2010-2016	Assistant Professor, Dept. of Bioengineering, University of Louisville, KY
2007-2010	Postdoctoral Fellow, Univ. of Texas Health Science Center – SHIS, Houston, TX
2003-2006	Doctoral Student, Dept. of Biomedical Engineering, Univ. of California, Irvine

RESEARCH STATEMENT

Dr. Frieboes pursues an improved understanding of cancer progression and response to treatment by applying principles from engineering and the physical sciences. His expertise is focused on the development and integration of mathematical modeling, computational simulation, and experimental biology techniques to study cancer. This work is part of the burgeoning field of "Physical Oncology," in which cancer is studied not only from a biological standpoint but also as a physical system using mathematics and physics. This interdisciplinary study of cancer requires that experimental and clinical data drive the computational and modeling work. The aim of Dr. Frieboes' research is to predict tumor behavior from the molecular and cellular scale events, with the ultimate goal to help guide the treatment of individual patients. This novel research intersects the fields of cancer biology, scientific computing, data visualization, mathematical biology, and physical oncology.

The ultimate goal of this integrated physical sciences/biology work is to dramatically improve cancer treatment outcomes. To this end, the work can be divided into the following scientific contributions:

- Mathematical modeling and computational simulation to characterize tumor growth
- Multiscale linking of molecular- to cell- to-tissue-scale events during tumor progression
- Integration of modeling and experimentation to characterize cancer treatment response
- Modeling and simulation of cancer nanotherapy
- Modeling and simulation of cancer immunotherapy

Complete list of publications:
http://www.ncbi.nlm.nih.gov/pubmed/?term=frieboes+h