

People

Faculty

Emeritus Faculty

Part-time Lecturer

Staff

Faculty

Irene Georgakoudi

Associate Professor, Department of Biomedical Engineering

Education

1999 Ph.D., University of Rochester, Rochester NY, Biophysics

1996 M.Sc., University of Rochester, Rochester NY, Biophysics

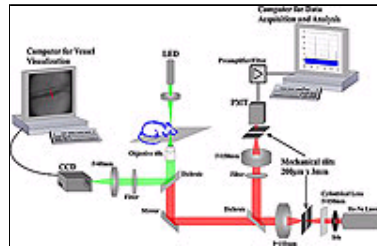
Research Interests

Research efforts in my laboratory focus on the development of novel optical technologies for disease diagnosis and tissue engineering applications. We rely mostly on endogenous sources of fluorescence and light scattering contrast to enable easy translation from the laboratory studies to the clinic and we employ linear and non-linear spectroscopic imaging approaches. The three main research areas include:

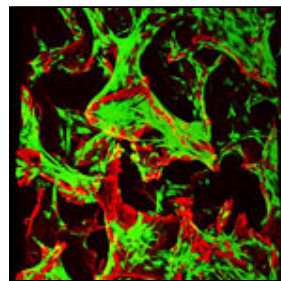
- **Development of Novel Optical Biomarkers for Early Cancer Detection**
- **In Vivo Flow Cytometry**
- **Optical Monitoring of Cell-Matrix Interactions in Engineered Tissues**



Noninvasive biochemical and morphological assessment or apoptotic epithelial cells using autofluorescence microscopy



Optical schematic of In Vivo Flow Cytometer



Preadipocytes on a silk scaffold stained with live dead assay kit



Contact Info

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[Email Professor](#)

View:

- > [Curriculum Vitae](#) (PDF)
- > [Research Group website](#)

Biography

Irene Georgakoudi has been conducting research related to the use of light for treating and detecting human diseases for more than 15 years. She has co-authored nearly 50 peer-reviewed articles and book chapters and has presented her work at national and international meetings. She is very active in the organization of scientific conferences on biophotonics in the United States and in Europe and involved in the establishment of a vibrant biophotonics program in Pakistan. She has served on the Board of Directors of the Optical Society of America. Her research is funded by the National Institutes of Health, the National Science Foundation and the American Cancer Society.

Teaching

EN 31- Exploring Laser Light

Click on the PDF links below:

- [Lab1 Power Measurements](#)
- [Lab2 Youngs Experiment](#)
- [Lab3 Youngs Experiment](#)

- [Lab4 Thin Lens Combinations](#)
- [Lab5 Polarization](#)
- [Lab6 Optical Fibers](#)

- [Lab6 Supplement](#)
- [Lab7 Hologram](#)

Click on the PDF or PPT links below:

[Lecture 1](#)

[Lecture 2](#)

[Lecture 3](#)

[Lecture 4-6](#)

[Lecture 7](#)

[Lecture 8](#)

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Honors and Awards

- Research Scholar Grant, American Cancer Society (2009-2013)
- Board of Directors, Optical Society of America (2008-2009)
- Attendee of the "U.S. Frontiers in Engineering Symposium" organized by the National Academy of Engineering (2006)
- NSF Career Award: Non-invasive modalities for optical imaging of cell-matrix interactions in engineered tissues (2006-2011)
- Inaugural Sturge Price awarded for "pioneering contributions to spectral diagnosis of biological materials using optical spectroscopic methodology." (2005)
- Claflin Distinguished Scholar Award, Massachusetts General Hospital, Harvard Medical School (2004)
- National Research Service Award, U.S. National Institutes of Health (1999-2002)

Professional Positions

2010 Program co-chair, Microscopy, Optical Society of America Meeting on Biomedical Optics, Miami Beach, FL

2010 Program committee and session chair, Gordon Research Conference on Lasers in Medicine and Biology, Plymouth, NH

2008-2009 Board of Directors, Optical Society of America (OSA); Chair, Member and Education Services Council, OSA

2009 Program co-chair, European Conference in Biomedical Optics, Munich, Germany

2009 Session chair/organizer, Advances in Optics for Biotechnology, Medicine and Surgery, Engineering Conferences International, Burlington, VT

2008 Program co-chair, Optical Society of America meeting on Biomedical Optics, Tampa, FL

2008 Program committee and session chair, SPIE Photonics West meeting, San Jose, CA

2007 Vice chair, Member and Education Services Council, OSA

2006 Program committee, Annual CLEO/QELS meeting, CA

2005 Session organizer and chair (New Technology/Methodology), Gordon Research Conference on Lasers in Medicine and Biology, Plymouth, NH

Membership in Professional Societies

- Optical Society of America
- American Association for Cancer Research
- SPIE – International Society for Optical Engineering
- Biomedical Engineering Society