**DANIEL M. FISHMAN**
5 Ingleside Avenue
Pennington, NJ 08534
(609) 730-8641
mendfish@nj1.aae.com

## OBJECTIVE

A teaching position in Math and Physical Sciences.

## CAREER SYNOPSIS

- **Ph.D. in Physics**, *Carnegie Mellon University*
- Biotechnology Research
  - Microfluidics
  - Bioassays
  - Fluorescence
  - Device design
  - Proposal writing and presenting
  - Equipment training
- University Research
  - Mentoring and Classroom Teaching
  - Physical Chemistry
  - Nucleic Acids
  - Optics and lasers
  - Programming and data analysis
  - Microscopy and imaging

## PROFESSIONAL EXPERIENCE

**SARNOFF CORPORATION, Princeton, NJ** **1996-1999**
***Member, Technical Staff***
Member of the Bioelectronics Group/Genomics Group, in the Life Sciences and Systems Division.

- Developed microfluidic technology used in bioassay devices.
- Received Sarnoff Achievement Award for the first demonstration of a microfluidic process involving electrokinetic pumping, oligonucleotide hybridization, fluorescence detection, and light microscopy, in a glass microfabricated device. Two inventions in this area are in the process of being patented by Sarnoff.
- Purchased and maintained several microfluidic workstations and trained technicians and scientists in their use.
- Led technical-writing and integration phase of proposals in many different areas. Presented work to clients and prospective clients.
- In a community outreach program, The Science Alliance, partnered with a high-school teacher to develop a teaching module on mathematics.

**CENTER for LIGHT MICROSCOPE IMAGING and BIOTECHNOLOGY, Pittsburgh, PA** **1995-1996**
***Postdoctoral Research Associate***

- Developed components of a mesoscopic imaging system capable of monitoring morphology of living tissue.
- As a representative of a beta-testing site for Applied Spectral Imaging, Inc., explored applications of spectral bioimaging techniques in the fields of pathology, cell biology, and molecular biology.

**CARNEGIE MELLON UNIVERSITY, Pittsburgh, PA** **1994-1995**
***Postdoctoral Research Associate***

- Developed and published hypotheses on the structure of supercoiled DNA in aqueous environments.
- Guided and supported physical chemistry doctoral students working on optical studies of liquid crystalline defects and bulk polymer dynamics.
- Procured and installed light scattering equipment.
- Executed polymer characterization studies as part of a consulting contract with a manufacturer of research grade polymer standards.

**CARNEGIE MELLON UNIVERSITY, Pittsburgh, PA** **1987-1994**
*Graduate Teaching & Research Assistant*

**Teaching:**
- Taught recitation sections in undergraduate physics courses. Received outstanding evaluations.
- Worked with the university's Academic Teaching Center as a physics advisor to develop a program for training teaching assistants.
- Graded for Chemistry Department courses on physical chemistry.

**Research:**
- Designed and implemented experiments probing the behavior of DNA plasmids in dilute solutions.
- Maintained the Light Scattering Laboratories, including upkeep of the argon-ion lasers and related equipment, and training and support of new students.
- Designed and created specifications for a light scattering goniometer capable of discriminating angles as small as two degrees.

**MIT LINCOLN LABORATORY, Lexington, MA** **1984-1987**
*Junior Analyst*
- Assisted in radar data analysis and development of analysis techniques for several defense department programs.
- Developed and implemented spectral analysis techniques for analysis of Kalman Filter residual data.
- Assisted in the analysis of ballistic coefficients.
- Developed algorithms and computer program prototypes.
- Acted as a consultant and provided technical support to our clients in the use of our analysis software.

## AWARDS

1998 – Sarnoff Team Award, for designing, fabricating and demonstrating detection and identification of biological agents in an integrated miniature microfluidic detection system using DNA-based and function-based biochemical assays.
1997 – Sarnoff Technical Achievement Award, for assay development and device design of a multi-probe hybridization system in microscale enabling high-throughput genomic and diagnostic analysis.
1992 – Winters Foundation Fellowship for light scattering studies of DNA.
1991 – National Research Service Award from the Department of Health and Human Services for work in the interdisciplinary field of biomedical research (three year award).

## PRESENTATIONS

American Physical Society, Pittsburgh, PA, March 1994
Biophysical Society, San Francisco, CA, February 1995
SPIE, San Jose, CA, January 1999

## PUBLICATIONS

D.M. Fishman, G.D. Patterson (1996), "Light scattering studies of supercoiled and nicked DNA" *Biopolymers* **38**:535-552
D.L. Farkas, B.T. Ballou, G.W. Fisher, D. Fishman, Y. Garini, W. Niu, E.S. Wachman (1996), "Microscopic and mesoscopic spectral bio-imaging" *Proc. Soc. Photo-Optical Instr. Eng.*, **2678**:200-206
D.M. Fishman, T.L. Fare, Q. Dong, Z.H. Fan, T.J. Davis, R. Kumar (1999), "Biological assays in microfabricated structures", *Proc. Soc. Photo-Optical Instr. Eng.*, **3603**:192-197