

Executive Summary of Physics Department Annual Report 1996-1997

David Aspnes received the 1997 NCSU Alumni Association Outstanding Research award, and was elected a Fellow of the American Vacuum Society and of the Society of Photo-Optical Instrumentation Engineers. He also chaired the 24th annual Conference on the Physics and Chemistry of Semiconductor Interfaces held in Raleigh. **John Blondin** was named a Cottrell scholar. **Jerzy Bernholc** was named a Computerworld Smithsonian Science award finalist. **Gary Mitchell** was awarded a three month renewal of his Alexander von Humboldt Foundation Senior Scientist award. At the Sigma Pi Sigma national Diamond Jubilee celebration in Atlanta, **Worth Seagondollar** was honored with the creation of a new award, the "Worth Seagondollar Service award". In addition, he was named the first recipient of the award. **James York** (BS Physics 1962) was named the 1997 Distinguished alumnus of the College for 1997. **Richard Patty** was named President-elect of the Southeastern Section of the American Physical Society, and received the Board of Governors College award for teaching. **Keith Warren** was the winner of the 1997 College EPA award for excellence. **Elizabeth Rieg** was named to the NC State University Academy of Outstanding Teachers. **Robert Egler, Jae Park, Richard Patty, and John Risley** were named faculty fellows of the NCSU first year college. The NCSU chapter of the Society of Physics Students, adviser **Chris Gould**, was recognized by the national SPS office with an Outstanding Chapter Award, the fourth award in the last five years.

Ho-Meoyng Choi was awarded a nationally competitive one-year renewal of his SURA/Jefferson Graduate Fellowship and graduate student **Michael Owen** received the best poster award at the IAU Colloquium 163 conference in Adelaide, Australia.

The Department faculty published 145 papers in refereed journals (10 in Physical Review Letters) and gave 275 presentations at professional meetings and in seminars and colloquia. Federal research funding support (excluding indirect costs) was \$3.6M, the second highest in the University. From the NCSU Research Office reports, total research funding for Physics was \$9.4M.

The Department continues to offer one of the largest service teaching programs in the US: ranked eight out of 761 programs nationwide in the latest American Institute of Physics enrollment report. Students continue to be positive about the instruction: on teaching evaluations, 75% responded yes to "I find this course to be generally satisfactory".

The department awarded 16 BS degrees, 2 MS degrees and 5 PhD degrees.

The speaker for the 1996 L. H. Thomas lecture was **Nicolaas Bloembergen** of Harvard University, talking about non-linear optics. The visit include a presentation at Enloe High School. The speaker for the 1997 Derieux lecture was **Roger Chevalier** of the University of Virginia, talking about supernovae.

Honors and Awards Received, Fall 1996 - Spring 1997

David Aspnes: Alumni Association Outstanding Research Award

Elected Fellow of the Society of Photo-Optical Instrumentation Engineers

Elected Fellow of the American Vacuum Society

Jerzy Bernholc: Finalist, Computerworld Smithsonian Science Award

John Blondin: Named 1996 Cottrell Scholar

Robert Egler: Named Faculty Fellow of the NCSU First Year College
Invited to serve as a Citizen-Ambassador to the Peoples Republic of China for the
Astronomical Society of the Pacific

Chueng-Ryong Ji: Elected Fellow of the Korean-American Science and Engineering Association
in North Carolina

G.E. Mitchell: Alumni Graduate Distinguished Professor

Alexander von Humboldt Foundation Senior Scientist Award

J.Y. Park: Elected to Sigma Iota Rho

Named Faculty Fellow of the NCSU First Year College

Richard Patty: Received the Board of Governors College Award for Excellence in Teaching

Named Faculty Fellow of the NCSU First Year College

Elizabeth Rieg: Elected to the NCSU Academy of Outstanding Teachers

John Risley: Named Faculty Fellow of the NCSU First Year College

Worth Seagondollar: Sigma Pi Sigma "Worth Seagondollar Award" created in his honor

Keith Warren: 1997 EPA Award for Excellence

SPS Chapter: Named "Outstanding Chapter" for 1995 -1996 by the National
Society of Physics Students office for the fifth time in the last six years.

Undergraduate Awards

Department of Physics Awards:

Senior Award for Research: William J. Lyerly

Leadership: David J. Picciotto

Humanities: John R. McDaris

Outstanding Undergraduate Tutor/Laboratory Instructor: John McDaris

Nancy Chung Freshman Scholarship: Tina D. Spencer

College of Physical and Mathematical Sciences Awards:

Research: William J. Lyerly

Scholarly Achievement: John W. Wilson

University Scholars Program:

Richard S. Busby

William J. Lyerly

John R. McDaris

John W. Wilson

Graduate Awards:

Outstanding Graduate Teaching Assistants

William Beal

Andrew White

Mark Reams

Ho-Meoyng Choi: **Sura/Jefferson Graduate Fellowship**

Aaron Titus: **Best Student Paper at the NC Section of the American Association of Physics Teachers Spring meeting**

Michael Owen: **Best Poster at the IAU Colloquium 163 in Adelaide, Australia**

Service on major university committees:

D. Aspnes - NCSU Hazardous Materials Management Committee

R. Beichner - University Teaching Effectiveness & Evaluation Committee

University Council on Teacher Education

Instructional Effectiveness Mini-Grant Selection Committee

Advisory Board for Teaching Effectiveness Center

J. Bernholc - University Research Committee

Chair, NC Committee on Partnerships for Advanced Computational Infrastructure

Graduate Fellowship Committee in Computational Sciences

S. Cotanch - Steering Committee, NCSU Computational Engineering and Sciences Program

R. Egler - University Integrated Activity Database Planning Committee

C. Gould - Faculty Trustee Committee of Honorary Degrees

Chair, Radiation Safety Advisory Committee

D. Haase - Executive Council of Executive Committee, NCSU Academy of Outstanding Teachers

Director of The Science House

University Task Force on Performance Indicators

C-R. Ji - University Council on Undergraduate Education

K. Johnston - University Government Committee

Faculty Senate Committee on Development of Campus-Wide Deans' Evaluation Form

Council on Athletics

University Intern Selection Committee - Provost's Office

G. Mitchell - Committee on Interdisciplinary Graduate Education in Electronic Materials

Awards and Credentials Committee

Committee to Select Alumni Distinguished Professor

University Graduate Council to UNC General Administration

R. Mowat - Radiation Protection Council

University Strategic Planning Committee

Nuclear Reactor Program Strategic Plan Advisory Committee

J. Park - NCSU International Study Group on Japan

G. Parker - University Open House Committee

R. Patty - Faculty Senate

University Honors Council

Merit Awards Advisory Committee

Executive Committee of the Academy of Outstanding Teachers

S. Reynolds - University Arts Studies Advisory Committee

J. Risley - University Intellectual Property Committee

D. Sayers - NC Star Executive Committee

NC State Alumni Association Outstanding Research Awards Committee

Offices held; national committees:

- **Harald Ade** is a member of the General Users Oversight Committee of the National Synchrotron Light Source, the User Advisory Committee of the Duke Free Electron Laser Laboratory, the User Executive Committee of Advanced Light Source at LBNL, the Program Study Panel for the National Synchrotron Light Source, and the Editorial Board of the Journal of Electron Spectroscopy. He was the Organizer of the Workshop on "Spectromicroscopy", LBNL, the Session Chair, ALS user meeting, LBNL, the Session Chair, International Conference on X-ray Microscopy and Spectromicroscopy, and the Co-organizer of the Symposium "Applications of Synchrotron Radiation to Materials Science".
- **David Aspnes** served as a Councillor of the American Physical Society from the Division of Condensed Matter Physics, as US Editor of Applied Surface Science, as Editor of Proceedings of the Conference on the Physics and Chemistry of Semiconductor Surfaces, and as Editor of the Proceedings of the Third International Conference on Atomically Controlled Surfaces and Interfaces. He is a Member of the Editorial Board of Thin Solid Films, and of the Editorial Board of Physical Review B. He was Chair of the 24th Annual Conference on the Physics and Chemistry of Semiconductor Interfaces and SURA liaison to the Industrial Advisory Board of CEBAF, as well as a Member of the International Program Committee for the International Conference on the Physics of Semiconductors. He also served as a Member of the Governing Board of the National Nanofabrication Users Network, and as a member of the Awards Committee of the Materials Research Society.
- **Robert Beichner** is Chair of the American Association of Physics Teachers Committee on Research in Physics Education and a member of the American Association of Physics Teachers

Programs Committee. He also serves as Contributing Editor for Educational Technology Review, and as a member of the Editorial Board for the Journal of Educational Multimedia and Hypermedia.

- **Jerzy Bernholc** served as the NCSU representative for the Academic Affiliates of the Pittsburgh Supercomputing Center, as a member of the Graduate Fellowship Committee in Computational Sciences, the University Research Committee, and as Chair of the NC Committee on Partnerships for Advanced Computational Infrastructure. He was also a member of the Organizing Committee for The Seventh Annual Workshop on Recent Developments in Electronic Structure Algorithms, Minneapolis, Minnesota, Co-organizer of the CECAM workshop on Grid, Multigrid and Wavelet Methods in Electronic Structure Calculations, Session chair of the APS March meeting, Discussion Leader at the Gordon Conference on Point and Line Defects in Semiconductors, Session chair at the 24th Conference on the Physics and Chemistry of Semiconductor Interfaces, Chair of the Symposium on Wide-Gap Nitrides, a member of the Organizing Committee for the Symposium on Quantum Theory and Simulation of Bulk, Surface and Interface Phenomena and a member of the Organizing Committee for The Eighth Annual Workshop on Recent Developments in Electronic Structure Algorithms.
- **Kwong Chung** served on the Organizing Committee of the Center for Theoretical Sciences in Taiwan.
- **Steven Cotanch** continues to serve as a consultant to the Svedberg Laboratory in Uppsala, Sweden. He also serves on the CEBAF steering committee for end station design and is the theory spokesman for the CEBAF Kaon/hypernuclear program.
- **Robert Egler** was appointed as Associate Editor for Astronomy for the PIRA News.
- **Chris Gould** continues to serve on the International Advisory Committee, Dubna, Russia for the I.M. Frank Prize. He served on the Neutron Program Advisory Committee for the Los Alamos Neutron Scattering Center, and he continues as Zone 5 Councilor for the National Society of Physics Students.
- **David Haase** continues as Director of The Science House, and was a Member of the Executive Committee and the Pegram Award Selection Committee of SESAPS.
- **Chueng-Ryong Ji** served as the Plenary Session Chair of the KOSEF-JSPS Winter School on Recent Developments in Particle and Nuclear Theory, organized the 1996 Technical Symposium of the KSEA North Carolina Chapter, and as a Council Member of the North Carolina Chapter of the Korean-American Scientists and Engineers Association.
- **Karen Johnston** was the Chair of the Awards Committee of the American Association of Physics Teachers, Chair of the AAPT Review Board, and Chair of the AAPT Executive Board, and Organizer of the AAPT Society Liaisons. She also served on the American Institute of Physics Governing Board, Education Advisory Committee, and Program Policy Committee.
- **Gerald Lucovsky** served as Editor-in-Chief of the Journal of Vacuum Science and Technology, as editor of the Journal of Vacuum Science and Technology A, as member of the Editorial Advisory Board for the Journal of Physics C, as a member of the International Advisory Committee for the 17th International Conference on Amorphous Semiconductors, as a member of the PCSI Conference Committee, and as a member of the SICS Conference Committee.
- **G.E. Mitchell** served as the Associate Director of the Triangle Universities Nuclear

Laboratories, as a member of the Graduate Administrative Board, as a member of the Scientific Advisory Committee for the Triangle Universities Nuclear laboratory, and as the University Representative to the Pan-American Association for Physics.

- **Robert Nemanich** served as Second Vice President of the Materials Research Society, on the International Advisory Committee of Diamond International Conference, and as Organizer of the MRS Symposium on "III-Nitride, SiC and diamond Materials for Electronic Devices".

- **Jae Park** was an Advisor to the President of the Korean-American Scientists and Engineers Association. He also is a member of the Korea Academy of Science and Technology, the Presidential Advisory Committee on Peaceful and Democratic Unification of Korea, and is a Faculty Fellow of the North Carolina Japan Center.

- **Richard Patty** served as President of the North Carolina Chapter of the American Association of Physics Teachers, and as Vice-Chair and President-Elect of the South Eastern Section of the American Physical Society.

- **John Risley** served as a Nominator on the Nobel Prize Committee and as Editor of the journal Physics Academic Software.

- **Dale Sayers** served as the spokesperson for X-11 PRT NSLS, on the Advisory Committee for MRCAT, on the Advisory Committee for the IIT Synchrotron Research and Instrumentation Center, on the International Advisory Committee for the XAFS VIII Conference, on the Review Committee for the Users Group of the Duke FEL Facility, on the Advisory Committee for BioCAT-APS, on the NSLS Proposal Study Panel, and on the Steering Committee for the MEMS Workshop.

- **Jan Schetzina** served as a Member of the Program Committee for the International Conference on II-VI Semiconductors, as a Member of the Program Committee for the US Workshop on Molecular Beam Epitaxy, as a Member of the Program selection Panel for ONR, and as a Member of the Program Committee for the International Conference on MBE.

Publications Summary (Calendar Year 1996)

Refereed Publications: 165

Phys. Rev. Letters: 10

Applied Phys. Letters: 2

ApJ Letters: 2

Other publications: 21

Papers presented at professional meetings; seminars or colloquia presented: 275

Bachelor Of Science Degrees Conferred

Samuel N. Acha

Richard S. Busby

Kerry S. Chestnut II

Nathan S. Ciliberto

Tavin F. Cole

Peter J. Dickson

Thomas C. Humbert

Henry O. Landry

William J. Lyery

John R. McDaris

Jason A. Messimore

Robert S. Parrish

David J. Picciotto

Robert L. Reading, Jr.

Karl G. Reavis

John W. Wilson

Master of Science Degrees Conferred

Hugh L. Harrington

Michael A. Netzer, Jr.

Doctor of Philosophy Degrees Conferred

Amzie A. Adams

Charles J. Brabec

Lisa Y. Lowie

Sharon L. Stephenson

Gerald A. Vavrina