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**Department
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I. FORWARD

The 2003-2004 academic year was marked by several events that brought increased recognition to the Department of Physics and Physical Oceanography and bolstered its position as an emerging force both on campus and beyond.

For Fall 2003, Professor Fred Bingham taught PHY 105 (Introductory Physics) as part of a UNCW Learning Community (LC) with Professor Paul Townend of the History Department. The LC “Science, Technology and Western Civilization” included discussion of the lives of great physicists and how their discoveries influenced the times in which they lived. The LC experience is new to UNCW this year, and I am pleased that the Department is already a player in this high-profile venture.

Undergraduate involvement in faculty-directed research has reached an all time high, with 8 students participating in 6 different projects this year. DIS activities have led to oral presentations by our undergraduate majors in several different venues: departmental colloquia, the 70th Annual SESAPS Conference hosted by UNCW, the Triangle Undergraduate Research Symposium held at Duke University, and the 2004 CAA Undergraduate Research Conference held at the University of Delaware.

This year the Department was privileged to host the 70th Annual Meeting of the Southeastern Section of the American Physical Society (SESAPS). The conference, held at the Holiday Inn Sunspree, Wrightsville Beach, November 6-8, 2003, was an unqualified success. With 243 registered participants including 75 undergraduate students from colleges and universities throughout the southeast, this was among the largest meetings in the history of the organization. The event was marked by several ‘firsts’, including the first joint meeting with the NC-AAPT (North Carolina Section of the American Physical Society), and the first time a SESAPS gathering was hosted by such a small department (and one devoid of a graduate program). Special thanks are due Professors Moorad Alexanian who chaired the Local Organizing Committee, Liping Gan who organized two focus sessions on Quantum Chromodynamics (QCD) and chaired one of them, and Timothy Black who organized and participated in the SPS-ΣΠΣ multi-zone meeting, organized a student poster session and competition for the Marsh White Award, and chaired one of the two SESAPS conference sessions on Nuclear Physics.

One immediate benefit of hosting SESAPS was the complete renovation of the DL 212 lecture facility, which was the site of the November 2003 SPS-ΣΠΣ multi-zone meeting. The makeover included a fresh coat of paint, new carpet and flooring tiles, refinished desktops, and a custom-built demonstration and storage console.

Finally, I wish to congratulate two members of our physics ‘family’: Dr. Liping Gan has been reappointed to a second term as Assistant Professor of Physics, and was cited by the RPT Committee for “exceptional” accomplishments during her first three years at UNCW. And junior physics major Camilo Andres Alvarez is the winner of the 2004-2005 J. Marshall Crews Scholarship in Science, a school-wide merit-based award for rising juniors or seniors in a science field. Camilo is the first physics Crews Scholar since the award was established in 2001.

Curt A. Moyer
July, 2004

II. ORGANIZATION

A. Staff

Frances C. Brown, Department Secretary

Professors

Moorad Alexanian	Ph.D. Indiana University, 1964
Brian F. Davis	Ph.D. North Carolina State University, 1982
Marvin K. Moss	Ph.D. North Carolina State University, 1961
Curt A. Moyer	Ph.D. State University of New York at Stony Brook, 1971
Edward A. Olszewski, Jr.	Ph.D. University of North Carolina at Chapel Hill, 1976

Associate Professors

Frederick M. Bingham	Ph.D. University of California, San Diego, 1990
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Assistant Professors

Timothy C. Black	Ph.D. University of North Carolina at Chapel Hill, 1995
Liping Gan	Ph.D. University of Manitoba, Winnipeg, Canada, 1998

B. Departmental Committees for 2003-2004

Lab Development Committee

L. Gan, chairperson
T. Black
B. Davis
C. Moyer

Curriculum Committee

C. Moyer, chairperson
F. Bingham
M. Moss
E. Olszewski

Colloquium Coordinator

M. Alexanian

SACS Review Committee

All tenure-track faculty
C. Moyer, chairperson

SPS | Sigma Pi Sigma Advisor

T. Black
C. Moyer

Computing Resources Coordinator

E. Olszewski

Faculty Senate Representative

F. Bingham

Academic Advising

M. Alexanian
B. Davis

Library Representative

L. Gan

III. FACULTY

A. Areas of Specialization

1. Atomic Physics

Charge exchange in atomic collisions; response of atoms to intense electromagnetic fields; atomic structure studies; autoionization.

Professors Alexanian, Davis, Moyer

2. Marine Sciences

Large-scale physical oceanography; observational oceanography; physics of the oceans.

Professors Bingham, Moss

3. Nuclear and Particle Physics

Low energy few-nucleon systems; hypernuclear physics; quantum chromodynamics; string theory.

Professors Black, Gan, Olszewski

4. Physics Education

Multimedia-based techniques for teaching introductory physics; general physics pedagogy.

Professors Black, Moyer

B. Honors and Awards

1. Dr. Timothy Black

Selected for a summer research appointment at TUNL/Duke University for May-June, 2003, to conduct experimental research in low energy few-nucleon physics and to develop sophisticated new detection instruments.

2. Dr. Liping Gan

Selected for and participated in the Southern Regional Leadership Forum for Women Leaders on April 21-23, 2004 at the University of South Carolina in Spartanburg, SC. Dr. Gan was nominated for this event because of her strong record of accomplishment. The purpose of the Forum was to bring together emerging and established leaders in educational institutions to discuss critical issues and challenges facing the higher education community.

C. Grants and Gifts (awarded 2003-2004)

Agency and Investigators	Title / Subject	Amount
National Oceanic and Atmospheric Association Marvin Moss (with other project including Bingham, F.)	<i>“A Collaborative Coastal Ocean Research and Monitoring Program (CORMP) 2003-2004 Renewal”</i>	\$1,192,200

University of South Carolina (sub-contract) Marvin Moss	<i>“Operational Support of Cara-COOPS”</i>	\$74,500
National Science Foundation Marvin Moss	<i>“Building the integrated ocean observing system: Integrating the Coastal Ocean research and Monitoring Program (CORMP) with regional and national observing, data, and governance systems and structures”</i>	\$70,200
National Science Foundation Timothy Black (with 2 project co-PI's)	<i>“Neutron Interferometry and Neutron Schroedinger Wave Optics”</i>	\$114,710 (for FY 2004)
UNCW Office of International Programs Timothy Black	Summer research support	\$500
SPS-ΣΠΣ National Office Timothy Black	Sponsorship of the SPS-ΣΠΣ Zone Meeting, November 7, 2003 at UNCW	\$500
National Science Foundation Liping Gan	“”	\$57,160 (supplement)
Research Corporation Liping Gan	<i>“Precision Measurements of Electromagnetic Properties of the Light Pseudoscalar Mesons”</i>	\$28,110 (over 2 years)
Jefferson National Laboratory Liping Gan	“”	\$6,480
UNCW Office of International Programs Moorad Alexanian	Travel award to attend??(not reported previously)	\$500

D. Proposal Submissions (2003-2004)

1. **Bingham, F.** *“Sea Surface Salinity Variability in the Western North Pacific”*, letter of intent to NOAA Climate and Global Change; amount requested: \$148,000 (declined); proposal to NSF; amount requested: \$165,485 (declined); proposal to NASA Oceans and Ice; amount requested: \$89,259 (pending).

2. **Black, T.** “*Science, Technology, Engineering, and Mathematics Talent Expansion Program: A program to significantly increase enrollment in the physics department at UNCW*”, to NSF; amount requested: \$90,785 (pending).
3. **Moss, M.** (with others, including **Bingham, F.**), “*Coastal Ocean Research and Monitoring Program (CORMP)*”, to National Oceanic and Atmospheric Association; amount requested: \$2,458,783 (pending).

E. Publications

1. **Black, T.** (with P. Huffman et. al.), “*A precision neutron interferometric measurement of the n - ^3He coherent scattering*”, Phys. Rev. C (accepted for publication).
2. **Black, T.** (with J. Alcorn et. al.), “*Basic instrumentation for Hall A at Jefferson Lab*”, Nuclear Instruments and Methods **A 522:3**, 294 (2004).
3. **Black, T. .** (with M. Amarian et. al.), “ *Q^2 Evolution of the Neutron Spin Structure Moments using a ^3He Target*”, Phys. Rev. Lett. **92:2** (2004) 022301.
4. **Gan, L. .** (with R. Madey et. al.), “*Measurements of G_E^n/G_M^n from the $^2\text{H}(e, e', n)^1\text{H}$ Reaction to $Q^2 = 1.45 (\text{GeV}/c)^2$* ”, Phys. Rev. Lett. **91:122002** (2003).
5. **Gan, L.** (with T. Miyoshi et. al.), “*High Resolution Spectroscopy of the $^{12}_\Lambda\text{B}$ Hypernucleus Produced by the (e, e', K^+) Reaction*”, Phys. Rev. Lett. **90:232502** (2003).
6. **Gan, L.** (with H. Tamura, et. al.) “*Gamma Spectroscopy of P-Shell Hypernuclei and ΛN Spin-Dependent Interactions-Report of BNL E930*”, Modern Physics Letters **A18**, 85 (2003).
7. **Gan, L.** (with R. Madey, et. al.) “*Neutron electric form factor up to $Q^2 = 1.47 (\text{GeV}/c)^2$* ”, The European Physical Journal **A17**, 323 (2003).
8. **Gan, L.** (with Sakaguchi, et. al.) “*Structure of $^{13}_\Lambda\text{C}$ hypernucleus studied by the (K^-, π^-, γ) reaction*”, Nuclear Physics **A721**, 979 (2003)..
9. **Gan, L.** (with T. Reichelt, et. al.) “*Measurement of the neutron electric form factor via recoil polarimetry*”, The European Physical Journal **A18**, 181 (2003).
10. **Gan, L. .** (with B. Plaster, et. al.) “*The electric form factor of the neutron via recoil polarimetry to $Q^2 = 1.47 (\text{GeV}/c)^2$* ”, AIP Conf. Proc. **675**, 625 (2003).
11. **Moyer, C.** “*Numerov extension of transparent boundary conditions for the Schrödinger equation in one dimension*”, AJP **72**, 351 (2004).
12. **Moyer, C.** (textbook with R. Serway and C. Moses) *Modern Physics, 3rd Edition*, Brooks/Cole Publishers division of Thomson Learning, April, 2004. ISBN 0-534-49341-6.

F. Talks Presented and Meetings Attended

Contributed Talks

1. **Bingham, F.** “*Realtime Coastal Observation Network for the Carolinas*”, presentation to the Carolina Coastal and Marine Weather Workshop, May 21, 2003 (not reported previously).
2. **Bingham, F.** “*Physical Response of the Ocean to Hurricane Isabel in Onslow Bay, NC*”, presentation made to the 17th Annual DU/NCOC Symposium, Duke Marine Lab, Beaufort, NC, November 21-22, 2003..
3. **Bingham, F.** Attended the 2004 Ocean Sciences Meeting, Portland OR, January 26-31, 2004 where he gave two presentations: “*Ocean Response to Hurricane Isabel in Onslow Bay, NC*”, and “*Shallow Water Response to Hurricanes in Onslow Bay, NC*”.
4. **Bingham, F.** “*Coastal Ocean Research and Monitoring Program (CORMP): A Collaborative Coastal Ocean Research and Monitoring Program*”, presentation to the 6th Annual Groundhog Day Observance, Wilmington International Airport, February 3, 2004
5. **Black, T.** “*Neutron Scattering Length Measurements in the Three and Four Nucleon Systems*”, presentation to the 70th Annual Southeastern Section Meeting of the American Physical Society (SESAPS), Wrightsville Beach, NC, November 6-8, 2003.
6. **Black, T.** “*Interferometric measurements of the $n+p$, $n+d$, and $n+3\text{He}$ coherent scattering lengths*”, presentation to the Conference on Precision Measurements with Slow Neutrons, Gaithersburg, MD, April 5-7, 2004.
7. **Davis, B.** “*Solar Interactions on Spiral Petroglyphs*”, presentation made to the 70th Annual Southeastern Section Meeting of the American Physical Society (SESAPS), Wrightsville Beach, NC, November 6-8, 2003.
8. **Gan, L.** “*Precision Measurements of Radiative Decay Width of η and η'* ”, presentation made to the 70th Annual Southeastern Section Meeting of the American Physical Society (SESAPS), Wrightsville Beach, NC, November 6-8, 2003.
9. **Moyer, C.** “*Numerov Extension of Transparent Boundary Conditions for the Schrödinger Equation in One Dimension*”, presentation made to the 70th Annual Southeastern Section Meeting of the American Physical Society (SESAPS), Wrightsville Beach, NC, November 6-8, 2003.
10. **Moss, M.** “*Coastal Ocean Research and Monitoring Program*”, numerous presentations to groups in Washington, locally, and elsewhere, including poster presentations (with other CORMP investigators).

Invited Presentations

11. **Alexanian, M.** “The No-cloning Theorem”, presentation to the Symmetries in Science XIII Symposium held at the Kloster Mehrerau, Bregenz, Austria.
12. **Bingham, F.** “*Physical Response of the Ocean to Hurricane Isabel in Onslow Bay, NC*”, seminar delivered at Coastal Carolina University, December 3, 2003.
13. **Bingham, F.** “*Physical Response of the Ocean to Hurricane Isabel in Onslow Bay, NC*”, seminar delivered to the Department of Marine Science, UNC Chapel Hill, February 11, 2004.
14. **Black, T.** “*Some New Experimental Results in the Three and Four Nucleon System*”, seminar presented to the Fourth International Workshop on Chiral Dynamics 2003, Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany, September 8-13, 2003.
15. **Gan, L.** “*Chiral Symmetry and Electromagnetic Properties of Pseudoscalar Mesons*”, colloquium delivered to the Physics Department of Duke University, February 26, 2004.
16. **Gan, L.** “*Precision Measurements of Radiative Decay Width and Transition Form Factor of Light Pseudoscalar Mesons*”, presentation to the 2004 International Conference on Quark and Nuclear Physics, Bloomington, IN, May 23-28, 2004.
17. **Gan, L.** “*Chiral Symmetry and Electromagnetic Properties of Pseudoscalar Mesons*”, presentation to the International Conference on Physics Education and Frontier Research, Shanghai, China, June 28-July 1, 2004
18. **Olszewski, E.** “*Toward Unification of the Basic Natural Forces*”, colloquium delivered in two parts to the UNCW Department of Physics and Physical Oceanography, January 30, 2004 (Part I) and February 6, 2004 (Part II).

Other Meetings Attended (Professional Development)

1. **Gan, L.** attended the Jefferson Lab Annual Users’ Meeting, Newport News, VA, June 11-13, 2003 (not reported previously).
2. **Gan, L.** attended the VIII International Conference on Hypernuclear and Strange Particle Physics, Newport News, VA, October 14-18, 2003.
3. **Gan, L.** attended the Southern Regional Leadership Forum: Women in Higher Education, sponsored by the American Council on Education Office, Spartanburg, SC, April 21-23, 2004.
4. **Moyer, C.** attended Physics in the Public Interest, a Conference for Physics Department Chairs, sponsored by APS and AAPT, at the American Center for Physics, College Park, MD, June 4-6, 2004.

G. Community Service

Especially noteworthy examples of community service for the 2002-2003 academic year include:

1. Professor **Moorad Alexanian** serves as a reviewer for the journal *Perspectives on Science and Christian Faith*
2. Professor **Moorad Alexanian** chaired the local organizing committee for the 70th Annual SESAPS conference, held November 6-8, 2003, at the Holiday Inn SunSpree in Wrightsville Beach, NC.
3. Professor **Fred Bingham** appeared on ABC TV in Raleigh, September 5, 2003 as part of a Channel 11 news report on rip currents. He also prepared a report on ocean conditions for local attorney Dan Morton, March 19, 2004.
4. Professor **Fred Bingham** serves on the Executive Committee and is Webmaster for the American Geophysical Union Ocean Sciences Section (oceans.agu.org), and received special recognition for his service at the section's January, 2004 meeting in Portland OR. He is also webmaster for the Carolina Sands Homeowners Association (carolinasands.org).
5. Professor **Fred Bingham** serves as a reviewer for the National Science Foundation as well as three professional journals, the *Journal of Geophysical Research*, *Geophysical Research Letters*, and the *Journal of Physical Oceanography*.
6. Professor **Timothy Black**, a member of the SESAPS 2003 Local Organizing Committee, organized and participated in the SPS-ΣΠΣ multi-zone meeting held on the UNCW campus, organized a student poster session and competition for the Marsh White Award given to the best student poster, and chaired one of two conference sessions on Nuclear Physics.
7. Professors **Timothy Black** and **Liping Gan** jointly organized and delivered a seminar "The International Character of Modern Physics" as part of the University's Mini Semester on International Perspectives.
8. Professor **Brian Davis** represented the Physics Department at the College of Arts and Science's 2nd Annual College Day event (November, 2003), where he presented a lecture titled "*Meteorites: Stones from the Sky*". He also gave a presentation titled "*The Venus Cycle and its Evening Apparition in 2004*" to the UNCW Lifelong Learning Society in February, 2004.
9. Professor **Brian Davis** participated in the Transforming Learning through Technology exhibit with a display titled "*Recording Ancient Astronomy with Modern Technology: Solar Interactions on Anasazi Petroglyphs*". The exhibit was one of many events scheduled to honor the installation of UNCW's newest Chancellor, Rosemary DePaolo (April, 2004).
10. Professor **Brian Davis** gave a telescope viewing of the planets and moon to students from the Duplin County Middle School the evening of March 26, 2004.

11. Professor **Liping Gan** organized two focus sessions on QCD and chaired one of them for the 70th Annual Meeting of the Southeastern Section of the American Physical Society, hosted by the UNCW physics department.
12. Professor **Liping Gan** lectured to high school physics teachers at the QuarkNet Workshop, August 11-12, 2004, Hampton, VA. QuarkNet brings high school teachers and students to the frontiers of 21st century research that seeks to explore some of the mysteries about the structure of matter and the fundamental forces of nature.
13. Professor **Liping Gan** heads up the UNCW Task Force on the First Year Faculty Experience for International Faculty, which met on April 23 and May 5, 2004. The Task Force promotes fellowship among international faculty and helps them face the challenges of a different culture.
14. Professor **Curt Moyer** chaired the session on Theoretical Physics at the 70th Annual Meeting of the Southeastern Section of the American Physical Society, hosted by the UNCW physics department.
15. Professor **Curt Moyer** served as a judge for the Science Fair held at the MCS Noble Middle School, March 2004.
16. Professor **Marvin Moss** is a member of the Board of Directors of the North Carolina Biotechnology Center in the Research Triangle Park. Professor Moss also consults with the Camp Lejeune Marine Base in Jacksonville, NC on environmental monitoring of base noise, water and air quality, and biological, chemical, and nuclear sensor program development.
17. Professor **Marvin Moss** continues to serve as advisor and co-worker with the UNCW Washington, DC congressional liaison person, Mr. Robert Wicklund.
18. Professor **Edward Olszewski** has given lectures and performed a number of physics demonstrations for the Penderlea Elementary School in Williston, NC.
19. Professor **Edward Olszewski** assumed responsibility for maintaining the SESAPS web page with the latest conference information.

IV. ACADEMIC ENRICHMENT & SUPPORT PROGRAMS

A. Course Offerings and Enrollments

Summer 2003	Instructor	Enrollment
PHY 101 Elementary College Physics	Herman, R.	64
PHY 102 Elementary College Physics	Black, T.	43
PHY 201 General Physics	Olszewski, E.	49
PHY 202 General Physics	Olszewski, E.	43
Fall 2003		
PHY 101 Elementary College Physics	Olszewski, E.	77
PHY 101 Elementary College Physics	Herman, R.	76
PHY 101 Elementary College Physics	Moyer, C.	71

PHY 103 Great Ideas in Physics	Alexanian, M.	36
PHY 105 Introductory Physics	Bingham, F.	21
PHY 201 General Physics	Olszewski, E.	42
PHY 201 General Physics	Black, T.	45
PHY 201-300 General Physics-Honors Lab	Olszewski, E.	3
PHY 201-301 General Physics-Honors Lab	Black, T.	5
PHY 260 Introduction to Astronomy	Davis, B.	77
PHY 311 Mathematical Physics	Moyer, C.	7
PHY 321 Mechanics	Davis, B.	12
PHY 335 Modern Physics	Gan, L.	14
PHY 411 Electricity & Magnetism	Alexanian, M.	7
PHY 444 Quantum Theory	Alexanian, M.	6
PHY 490 Analog & Circuits	Black, T.	10
PHY 495 Physics Seminar	Davis, B.	1
PHY 495 Physics Seminar	Gan, L.	1
Spring 2004		
PHY 102 Elementary College Physics	Herman, R.	56
PHY 102 Elementary College Physics	Olszewski, E.	99
PHY 102 Elementary College Physics	Moyer, C.	40
PHY 105 Introductory Physics	Bingham, F.	31
PHY 111 Archaeoastronomy	Davis, B.	31
PHY 202 General Physics	Olszewski, E.	24
PHY 202 General Physics	Olszewski, E.	53
PHY 202 General Physics-Honors Lab	Olszewski, E.	8
PHY 260 Introduction to Astronomy	Davis, B.	61
PHY 322 Classical Dynamics II	Moss, M.	8
PHY 412 Electricity & Magnetism II	Alexanian, M.	6
PHY 445 Optics	Alexanian, M.	2
PHY 455 Thermal Physics	Gan, L.	6
PHY 475 Physical Oceanography	Bingham, F.	1
PHY 490 Analog & Circuits	Black, T.	4
PHY 495 Physics Seminar	Black, T.	2
PHY 495 Physics Seminar	Herman, R.	2
PHY 575 Physical Oceanography	Bingham, F.	10

B. Innovative Teaching Initiatives

Consistent with its commitment to offer a quality physics degree program, the Department recognizes the following enrichment initiatives for 2002-2003:

Professor **Timothy Black** continues to teach an Honors section of physics laboratory for the introductory calculus-based sequence PHY 201-202. The honors lab has been an unqualified success and consistently reaches its enrollment target.

C. Research Opportunities for Undergraduates

The following research projects were active during the 2002-2003 academic year:

1. Laura Guy worked part time during the summer of 2003 with Professor **Fred Bingham** studying sea surface salinity (SSS) variability in the waters of the western North Pacific over decadal time scales. The work is aimed at helping to elucidate the role SSS plays in influencing changes to global climate. Results of

this investigation will be reported at the upcoming summer 2004 CLIVAR Meeting in Baltimore, MD.

2. Steven (Pat) Cash worked with Professor **Timothy Black** on a project to create visualization software to examine correlations between any pair of solution parameters arising from a large-scale, energy-independent phase shift analysis of light ion scattering reactions. The analysis program uses a sampling method to generate the whole joint probability distribution for the solution space.
3. During summer 2003, Professor **Timothy Black** directed student Chris Tate in a continuation of a project begun the previous year to construct a vacuum system for a low-energy light ion beamline for materials and detector studies. A grant proposal to further this work has been submitted to ??.
4. Students James Sheffield and Shane Martin assisted Professor **Timothy Black** on a project to simulate the magnetic field configurations arising from various arrangements of electromagnets. The work supports Dr. Black's research at NIST, where an experiment is being planned to measure the spin-dependent neutron-³He scattering length. NIST has supplied materials to construct the system at UNCW and Shane will continue work this summer to build the system and map the actual field.
5. Professor **Timothy Black** directed student Emily Billings in an independent study investigation of aeronautics, with focus on light aircraft instrumentation. The project was in support of Emily's training for a pilot's license.
6. For 2.5 months during the summer of 2003, students Galen Gresalfi and Josh Kessler assisted Professor **Liping Gan** with her research at Jefferson Lab developing a low energy recoil detector for experiments testing predictions of QCD (Quantum Chromodynamics). Both students described their experiences at the March 19, 2004 UNCW Physics Colloquium. Additionally, Galen addressed three other professional groups: the Triangle Undergraduate Research Symposium, Duke University (November, 2003); the 70th Annual Southeastern Section Meeting of the American Physical Society (SESAPS), Wrightsville Beach, NC (November, 2003); and the 2004 CAA Undergraduate Research Conference, University of Delaware (February, 2004). The students were supported by research grants from NSF and Jefferson Lab.

D. Physics Department Colloquia

Date	Speaker/Affiliation	Title
September 26	Ms. Laura Guy, University of North Carolina at Wilmington	<i>Optical Trapping and Manipulation of Biological Objects</i>
October 24	Dr. Haiyan Gao, Duke University and Triangle Universities Nuclear Laboratory	<i>A new search on neutron electric dipole moments</i>
November 21	Dr. Horst Meyer, Duke University	<i>Dynamic behavior of fluids near their liquid-vapor critical point</i>

December 5	Ms. Laura Guy, University of North Carolina at Wilmington	<i>Earth Science System Program (ESSP)</i>
January 16	Mr. Scott Watson, Brown University	<i>Inflation from String Theory</i>
January 30	Dr. Edward Olszewski, University of North Carolina at Wilmington	<i>Toward Unification of the Basic Natural Forces</i>
February 6	Dr. Edward Olszewski, University of North Carolina at Wilmington	<i>Toward Unification of the Basic Natural Forces (Part 2)</i>
February 20	Dr. Richard Kamens, University of North Carolina at Chapel Hill	<i>Secondary Organic Atmospheric Aerosol Formation: Is It Important</i>
February 27	Dr. Paul Frampton, University of North Carolina at Chapel Hill	<i>Theoretical Cosmology</i>
March 5	Dr. Casey Miller, University of North Carolina at Chapel Hill	<i>Multiscale Models of Multiphase Porous Medium Systems</i>
March 19	Mr. Joshua Kessler, University of North Carolina at Wilmington	<i>The Exotic Penta-Quark Particle</i>
	Mr. Galen Gresalfi, University of North Carolina at Wilmington	<i>The Student Experience at Jefferson National Laboratory</i>
March 26	Dr. Jian-Ping Chen, Jefferson Lab	<i>Spinning the Nucleon into Sharper Focus</i>
April 2	Dr. Albert Young, North Carolina State University	<i>Probing fundamental forces with ultra-cold neutrons: following the bouncing ball.</i>
April 22	Dr. Sten F. Odenwald, Applied Research Corp., Lanover, MD	<i>New Discoveries in 21st Century Astronomy</i>
April 23	Dr. Sten F. Odenwald, Applied Research Corp., Lanover, MD	<i>The Past as Prologue – What expect from the next sun spot cycle</i>

E. SPS/ΣΠΣ Activities

On April 22, 2004, the UNCW chapter of Sigma Pi Sigma, the national physics honor society, admitted to membership four undergraduate students: Camilo Andres Alvarez, Steven Patrick Cash, Galen Joseph Gresalfi, and Christopher Adams Tate. The induction ceremony followed a public lecture by guest speaker Dr. Sten Odenwald, an astronomer with NASA's Goddard Space Flight Center in Greenbelt and creator of the award winning website the Astronomy Café (www.astronomycafe.net). Refreshments (pizza and soda) were served during a social hour after the ceremony.

V. STUDENTS

A. Enrollment Statistics

Undergraduate Physics Majors

Year	Freshman (Fall)	Sophomores (Fall)	Juniors (Fall)	Seniors (Fall)	Second Majors (Fall)	Total	Annual Graduates	
							B.A. Degrees	B.S. Degrees
1994- 1995	0	4	9	12	N/A	25	1	4
1995- 1996	1	4	7	8	N/A	20	3	3
1996- 1997	0	12	5	10	N/A	27	5	6
1997- 1998	0	7	11	11	1	30	5	3
1998- 1999	0	3	5	15	2	25	6	3
1999- 2000	0	4	1	12	1	18	3	5
2000- 2001	0	4	3	6	1	14	3	2
2001- 2002	0	5	2	5	2	14	2	2
2002- 2003	0	3	7	3	1	14	3	1
2003- 2004	0	9	5	9	1	24	3	4

B. Degrees Awarded

December, 2003

Bachelor of Arts:

Jason Lee Gillikin

Bachelor of Science:

Laura Guy

May, 2004

Bachelor of Arts:

Emily Brooke Billing
Steven Patrick Cash (*cum laude*)

Bachelor of Science:

Elaine Lorien Imhoff Braman
Jerry Lee Jones
Joshua Barlow Kessler

C. Honors, Awards, and Scholarships

J. Marshall Crews Scholarship in Science: *Camilo Andres Alvarez*

This is a school-wide merit-based award for rising juniors or seniors in a science field, and provides for the full cost of tuition, fess, books, and supplies.

Camilo is the first physics Crews Scholar since the award was established in 2001.

Hildelisa Hernandez Departmental Award in Physics: *Camilo Andres Alvarez*

This award, consisting of a cash prize of \$500, is named for retired Professor Emeritus Hildelisa Hernandez. The award recognizes outstanding academic achievement of a member of the junior class who is seeking the B.S. degree in physics.

Camilo compiled a GPA of 3.98 and was one of four students inducted this Spring into the UNCW chapter of Sigma Pi Sigma, the national physics honor society.

Walter Schmid Award: *Jerry Lee Jones*

The Schmid Award is presented to a graduating senior, who, in the opinion of the physics faculty, shows great potential for contributing to the fields of theoretical or applied physics. The award consists of a plaque inscribed with the winner's name, and a cash prize.

Jerry is a member of Sigma Pi Sigma, the national physics honor society, and was this year's recipient of the Outstanding Minority Student Award presented by the College of Arts and Sciences.

Jefferson Lab Summer Fellowships: *Rogan Dakota Cronin, Galen Joseph Gresalfi, and James McMaster Sheffield*