

Research News

Please circulate to:

OFFICE of RESEARCH and SPONSORED PROGRAMS

Fall 2012

NEW ASSOCIATE PROVOST FOR RESEARCH

S. Bruce King

I am excited by the opportunity to serve the university as Associate Provost for Research and the challenge this position brings. During my 16 years in the Department of Chemistry, I have experienced the excitement and challenges associated with balancing teaching, scholarly work, and other professional commitments.

While progressing through the Wake Forest tenure system, I aimed for the teacher/scholar ideal by actively engaging in undergraduate teaching and mentoring while maintaining a nationally funded research group. Right now, I'm teaching a section of CHM 223, Organic Chemistry II, with about 40 students and supervising a postdoctoral researcher, 4 graduate students, and 3 undergraduate researchers in my lab.

I've served as both a principal and co-investigator on internally and externally funded grants, primarily from the National Institutes of Health and the American Heart Association, and worked extensively with the Office of Research and Sponsored Programs and the Graduate School. I've collaborated with many of you across departments, centers, and the Medical School on a variety of research projects and have experience navigating technology transfer and the IRB process. I hope my experience will allow me to identify and develop new ways to support faculty research endeavors, and I look forward to learning more about faculty work in all areas. This appointment enables me to support the many talented researchers at work in all disciplines and to engage both new and established faculty who wish to initiate research programs/projects. Feel free to contact me to discuss your ideas, projects, or questions.

CELEBRATING FACULTY RESEARCH ACHIEVEMENTS

Lori Messer, Director

On Monday, 24 September, the President and Provost's Offices and the Office of Research and Sponsored Programs celebrated the third highest year on record for research and other sponsored program awards: over \$9.1 million, excluding fellowships awarded directly to faculty and gifts.

The 120 invitees included fellowship and grant recipients as well as the Institutional Review Board and Research Advisory Council. The reception had to be relocated from the President's House because faculty success has overwhelmed its capacity. Although we know that many of you missed the beautiful setting, we are sure you agree that our national recognition for research is a great trade-off.

The group was treated to a rousing address by Provost Kersh. More than 25 years since his undergraduate study here, he remembered extraordinary classes with teacher-scholars like Debbie Best in Psychology, Barry Maine in English, Ron Dimock in Biology, and Jack Rejeski in Health and Exercise Science, who illuminated discussions with their research findings. He thanked faculty for their efforts and offered future support.



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WAKE FOREST
UNIVERSITY

INSTITUTIONAL ROUTING FORM – IS IT REALLY NECESSARY?

Amy Comer

All proposals for extramural funding must be routed through the university prior to submission to the sponsor. The routing process ensures that proposals for extramural support have received adequate internal review. Without this review, the university might not know it has committed its resources to a project, and since awards are typically made to the university rather than the project director, it is liable for ensuring compliance with all federal, sponsor, and university policies. The routing process helps to protect the university's interests by ensuring appropriate review and oversight of any solicitation on its behalf for outside funds.

The only exception to this policy is a fellowship awarded directly to the applicant, but faculty should still apprise their chair and dean when they submit it, so the department and college or school can plan personnel and budget resources to cover leave requests. If the sponsor will make the award to the university, faculty can maintain fringe benefits paid through payroll deduction. However, faculty whose fellowships will be administered by WFU must complete the Approval for Submission (routing) form. See <http://www.wfu.edu/rsp/Fellowships.html> for more information. Also faculty in the College of Arts and Sciences must complete the routing and approval process through their Dean's office.

By signing the routing form, principal investigators or project directors certify that the information on the form is accurate to the best of their knowledge. Certifications include:

- the accuracy of the proposal;
- adherence to sponsor and institutional guidelines;
- no significant financial interests related to the project;
- no lobbying;
- not currently debarred or suspended;
- not delinquent in any federal debt; and
- familiar with, and adherent to, WFU's patent policy.

Co-PI addendum forms are necessary to assure that co-investigators certify and agree to participate in the project.

The chair's signature assures the university that the department endorses the activities proposed and guarantees appropriate resources are available. This endorsement demonstrates the relationship of the proposed activities to the department's overall mission and goals and implies that the project has high priority.

The signature of the appropriate dean and the Associate Provost indicates that the proposal supports the overall mission of the university. ORSP's signature indicates that the proposal and budget have been reviewed and adhere to sponsor and institutional policies.

ORSP should receive routing forms 3 days prior to the proposal deadline, with the signatures of the PI, co-PIs, and department chair(s). ORSP will obtain the signatures of the appropriate dean and the Associate Provost prior to submission.

WFU wants to support all sponsored research projects but must be aware of any resources committed prior to submission of the proposal. The routing form and co-PI form are available on ORSP's website at <http://www.wfu.edu/rsp/proposal.html>.

INTERNAL FUNDING OPPORTUNITIES

Susan Edwards

Whether you are launching projects in the natural and mathematical sciences or building fundamental knowledge of human behavior, interactions, and social and economic systems, organizations, and institutions, the Office of Research and Sponsored Programs has an opportunity for you to receive funding up to \$10,000.

These internal funds can be used for research supplies, maintenance of essential equipment, travel, or technical support. The project period is 1 year with the potential for a 1-year, no-cost extension.

To apply for this funding, you must be full-time, tenured, or tenure-track faculty or research support staff with an adjunct faculty appointment on the Reynolda Campus. Nontenure-track faculty may be considered if their appointment will continue through the award year.

More detailed information on these two internal funding opportunities can be found on the ORSP website (<http://www.wfu.edu/rsp/>) under the side bar, *Internal Funding*.

Science Research Fund (SRF)

Submission Deadlines: Fall – 2nd Friday in October
Spring – 3rd Friday in February

Social, Behavioral, & Economic Science Research Fund (SBE)

Submission Deadlines: Fall – 4th Friday in October
Spring – 3rd Friday in February

INSTITUTIONAL REVIEW BOARD (IRB) Update—NEW AND IMPROVED eIRB!

Pam Moser, Associate Director for Faculty Research Compliance & Support

The web-based IRB system, eIRB, was introduced to Reynolda Campus researchers in September 2007. It was an extension of the system used at WFU Health Sciences (now Wake Forest School of Medicine) since January 2006. It had many advantages, including easier documentation of regulatory compliance; branching based on responses, so only relevant pages were presented; secure storage of IRB records; and reduced use of paper, photocopying, and mailing resources.

Disadvantages were also evident. Because it required interfacing with the Medical Center's computer network, Reynolda users encountered problems in creating eIRB accounts, logging in to eIRB, and changing their DEACNET password. They had to establish a VPN connection when off-campus. Moreover, redundancies in the application led to inadvertent errors and made reviews more tedious and time-consuming. While the Reynolda application was tailored to our needs as much as the existing platform and support system would allow, users complained that the questions did not fit our primarily social-behavioral-educational studies. The School of Medicine's IRB periodically requested revisions to the eIRB application and workflow to better meet their needs, but these changes were often contrary to our needs.

In fall 2011, the Office of Academic Computing proposed to create a separate site and application for Reynolda Campus human subjects research. Although immediately recognized as a labor-intensive project, a major overhaul was clearly the best option for improving the eIRB process for users—researchers and reviewers alike. The application revision and teasing apart of the two systems, including user accounts, archived applications, and workflow, took approximately six months, but the result is a more user-friendly application that went live June 4, 2012.

Here is a summary of the new application's improvements:

- ⇒ Total pages, including all branching options, were reduced from 67 to 40. A typical expedited application is now 16 pages instead of 23.
- ⇒ A new URL is used to access the Reynolda eIRB system <https://eirb.wakehealth.edu/Reynolda/>.

- ⇒ VPN is no longer required to use eIRB off campus; you can log in anywhere you have internet access.
- ⇒ Reynolda researchers whose studies are also reviewed by the Medical Center IRB can choose either campus at <http://eirb.wakehealth.edu>. The same user ID and password (DEACNET credentials) will allow log in to both systems.
- ⇒ Taking advantage of its branching workflow feature, seldom-used questions are still available if needed but out of the mainstream application when possible.
- ⇒ To reduce redundancy, a protocol document is no longer required. Information on background, purpose, or methods not requested elsewhere in the application is completed in protocol textboxes.
- ⇒ When possible, checklist options are listed with the most frequently chosen at the top.
- ⇒ The Data Confidentiality page was revised to better capture the specifics reviewers need to assess the informational risks of the study.

In addition to eIRB application changes, new eIRB users can use Google docs to request an eIRB account. See *Getting Started in eIRB* (http://www.wfu.edu/rsp/irb/getting_started.html), or click [here](#) if viewing the electronic newsletter.

Feedback on the new system has been very positive, and all feedback is welcome so that we can continue to improve the system.



LET US HELP YOU TO RELAX

Stephen Williams

We know you are busy preparing for your classes, teaching, doing research in the lab, monitoring and advising students. Yes, your university life is full, and when you call ORSP to discuss submitting a grant, we realize it is a labor of love. In getting the wording just right, making sure you have met all agency requirements, getting feedback from your collaborators, you suddenly realize the clock is ticking. Will we be able to submit all of this hard work before the deadline passes? Is it really 4:30? The tension is almost unbearable.

With your help, we can make most of this tension go away. Let the office know the agency and program to which you are submitting and—don't wait for it!—submit EARLY! With sufficient time, we can make sure your budget numbers and justification are correct, your formatting and CV meet agency guidelines, and all the correct files are uploaded. We can read parts of the proposal to make sure nothing is omitted; we can offer suggestions for clarifying and pumping up the discourse. *And* you won't have to worry about last-minute problems like s-l-o-w connectivity.

We want to make certain that you have the best chance of getting funded. We may not be able to help teach your class, run your lab, or advise your students, but early submission will assure no technicality obstructs the work you love to do. Let us help you to relax at least in this area by starting EARLY.

NEW NSF PROPOSAL AND AWARD POLICIES AND PROCEDURES GUIDE

Julie Edelson

The new version of the National Science Foundation's Proposal and Award Policies and Procedures Guide (PAPPG) consists of the Grant Proposal Guide (GPG) on preparing and submitting proposals and the Award and Administration Guide (AAG) on managing awards and administering NSF grants and cooperative agreements. It will be effective for proposals submitted on or after 14 January 2013.

Significant changes include:

- Revisions to the NSF Merit Review Criteria affecting the project summary and project description sections of proposals and annual and final reports. Briefly, the project description must contain a separate section discussing broader impacts; the Results from Prior Support (if any) must address intellectual merit and broader impacts; a new certification that organizational sup-

port will be made available as described in the proposal to address the broader impacts and intellectual merit activities; and annual and final reports must address activities intended to address the Broader Impacts criterion that are not intrinsic to the research.

- In the Biographical Sketch, the *Publications* section has been renamed *Products*, to include publications, data sets, software, patents, copyrights, and other deliverables.
- Coverage on compensation of Indirect Costs, or Facilities and Administrative Costs (F&A) for Colleges and Universities, has been clarified.
- The *Facilities, Equipment, and Other Resources* section has been modified to help institutions comply with the NSF cost-sharing policy.
- Additional proposal certifications must be submitted by the Authorized Organizational Representative (AOR) covering organizational support of the proposed research, tax obligations/liability and felony convictions.

Because the revisions to the Merit Review Criteria will have broad repercussions, NSF is conducting extensive outreach to its internal and external communities. Supporting materials include:

- A revised NSF Merit Review website with updated information about the revisions (http://www.nsf.gov/bfa/dias/policy/merit_review/)
- A resource website for the proposer community containing presentations, fact sheets, and other important links (http://www.nsf.gov/bfa/dias/policy/merit_review/resources.jsp); and
- A webcast in early November 2012 covering all of the PAPPG revisions (send an e-mail to policy@nsf.gov to be notified when it is available).

NSF will revise funding opportunity solicitations to alert applicants to significant changes in NSF proposal preparation guidelines. Please direct questions to the Policy Office in the Division of Institution & Award Support, policy@nsf.gov, or (703) 292-8243.

FACULTY FUNDED RESEARCH

MARCH—SEPTEMBER 2012

ANTHROPOLOGY

Steven J. Folmar, with Lisa Kiang, **PSYCHOLOGY**, *Oppression and Mental Health in Nepal*, National Science Foundation (NSF), \$159,937

ART

Morna O'Neill, *Decoration and Display: British Art at International Exhibitions*, National Humanities Center

BIOLOGY

T. Michael Anderson, *COLLABORATIVE RESEARCH: Mechanisms of Tree Recruitment Limitation across a Savanna Soil Moisture Availability Gradient*, NSF, \$131,812

Gloria Muday, with Carole Browne, **BIOLOGY**, *Teaching Genetics with Tomatoes*, American Society of Plant Biologists, \$30,000

William E. Conner, *Acoustic Aposematism, Mimicry, and Sonar Jamming in the Bat-Moth Arms Race*, NSF, \$100,000

Wayne Silver, with Susan Fahrback, **BIOLOGY**, *Undergraduate Neuroscience Training Cooperative between Wake Forest University and Winston-Salem State University*, National Institutes of Health (NIH), \$89,214

William K. Smith, *COLLABORATIVE RUI PROPOSAL: Effects of Contrasting Cloud Regimes on Plant Carbon/Water Relations at Treeline*, NSF, \$100,549

CENTER FOR ENERGY, ENVIRONMENT, AND SUSTAINABILITY

Miles R. Silman, **BIOLOGY**

- *Reynolda Gardens Piedmont Prairie Restoration*, US Fish and Wildlife Service, \$9,600
- *Ecosystem Effects and Carbon Content of Amazonian Bamboo-dominated Forests*, National Aeronautics and Space Administration (NASA), \$30,000
- *Lidar and Radar Interferometry Combined Model to Quantify Variations of Forest Structure and Biomass along Altitudinal Gradients in the Tropical Montane Forests*, NASA/California Institute of Technology, Jet Propulsion Lab, \$46,260

CENTER FOR NANOTECHNOLOGY AND MOLECULAR MATERIALS

David Carroll, **PHYSICS**, *PT-DT WOLED Development*, CeeLite Technologies, LLC, \$230,546

CHEMISTRY

Rebecca Alexander, *Dissecting Catalytic Features of Diverse Methionyl-tRNA Synthetase Enzymes*, NSF, \$167,626

Ulrich Bierbach, *Novel DNA-metalating Hybrid Anticancer Agents*, NIH, \$220,019

Christa Colyer, *Capillary Electrophoresis in Clinical Chemistry*, Ameritox, \$41,902

Patricia Dos Santos, *Target Specificity of Cysteine Desulfurase in Bacillus subtilis*, NSF, \$145,350

Angela Glisan King, *Project SEARCH Academy Summer Follow-up Program in Chemistry*, North Carolina AHEC/Wake Forest Health Sciences (WFHS), \$3,902

COMMUNICATION

Allan Loudon, with Alessandra Beasley von Burg, **COMMUNICATION**

- *Benjamin Franklin Trans-Atlantic Fellows Summer Institute*, US Department of State (DOS), \$250,000
- *Franklin Institute Embassy Funding*, DOS, \$46,800

Alessandra Beasley von Burg, *Where Are You From? Project Website and Media Launch*, North Carolina Humanities Council, \$2,000

COMPUTER SCIENCE

Samuel Cho, **PHYSICS**, *Extrapolating the Concept of Protein Corona for Understanding Nanoparticles At Large*, NSF/Clemson University, \$93,491

Jacquelyn Fetrow, **PHYSICS**, *Analysis of Redox-modulated Signaling Networks in Response to Ionizing Radiation*, NIH/WFHS, \$11,209

FUNDED FACULTY RESEARCH

March—September 2012, continued

Paúl Pauca, with **Robert Plemmons, MATHEMATICS & COMPUTER SCIENCE**, and **Todd Torgersen, COMPUTER SCIENCE**, *Implicit Geometry and Linear and Nonlinear Tensor-based Compression and Restructuring of High-Dimensional Multimodality Data Sets*, US Department of Defense (DOD)/Boeing Company, \$128,340

DIVINITY SCHOOL

Shonda Jones, *Community Engagement Fellows Program*, Cf Foundation, Inc., \$22,500

John Senior, *Partners in Ministerial Formation: Shifting the Pedagogical Center*, Wabash Center, \$20,000

GRADUATE SCHOOL OF ARTS AND SCIENCES

Brad Jones, *Graduate Research Fellowship Program*, NSF, \$57,000

HEALTH AND EXERCISE SCIENCE

Michael Berry, *Standardized Rehabilitation of ICU Patients with Acute Respiratory Failure*, NIH/WFHS, \$99,489

Anthony P. Marsh

- *Co-Core Leader for Clinical Research in Pepper Center*, NIH/WFHS, \$12,698
- *Demo II: Loss of Adipose Tissue and Physical Function Responses to Exercises*, NIH/WFHS, \$96,483

Stephen P. Messier, with **Shannon Mihalko, HEALTH AND EXERCISE SCIENCE**

- *Strength Training and Arthritis Trial (START)*, NIH, \$751,663
- *The Runners and Injury Longitudinal Study (TRAILS): Injury Recover Supplemental*, US Department of Defense (DOD), \$448,890

Gary D. Miller, *Increased Plasma Nitrite, Tissue Oxygenation, and Functional Changes in PAD*, NIH/Duke University, \$2,820

W. Jack Rejeski, *Co-Core Leader for Clinical Research in Pepper Center*, NIH/WFHS, \$19,307

HUMANITIES INSTITUTE

Mary Foskett, **RELIGION**, with David Phillips, **HUMANITIES**, *Wake Forest University Humanities Institute*, National Endowment for the Humanities (NEH), \$71,833

MATHEMATICS

Frank Moore, *Intensive Workshop in 2012 for Macaulay 2 Development*, NSF, \$17,126

Robert Plemmons, with **Paúl Pauca and Todd Torgersen, COMPUTER SCIENCE**, *Implicit Geometry and Linear and Nonlinear Tensor-based Compression and Restructuring of High-Dimensional Multimodality Data Sets*, US Department of Defense (DOD)/Boeing Company, \$128,340

Sarah Raynor, *Asymptotic Behavior of Solutions to Nonlinear Dispersive Equations*, Simons Foundation, \$35,000

Stephen B. Robinson, with **Sarah Raynor, MATHEMATICS**, *SEARCDE 2012 Conference*, NSF, \$24,832

PHYSICS

Keith Bonin, with **Martin Guthold and Jed Macosko, PHYSICS**

- *Accelerating Drug Discovery: On-chip Selection of DNA-encoded Chemical Libraries*, North Carolina Biotechnology Center (NCBC), \$100,000
- *Accelerating Drug Discovery: On-chip Selection of DNA-encoded Chemical Libraries*, NanoMedica, LLC, \$20,000

Samuel Cho, **COMPUTER SCIENCE**, *Extrapolating the Concept of Protein Corona for Understanding Nanoparticles At Large*, NSF/Clemson University, \$93,491

Jacquelyn Fetrow, **COMPUTER SCIENCE**, *Analysis of Redox-modulated Signaling Networks in Response to Ionizing Radiation*, NIH/WFHS, \$11,209

Natalie Holzwarth, with **Timo Thonhauser, PHYSICS and Akbar Salam, CHEMISTRY**

- *ES12: The 24th Annual Workshop on Recent Developments in Electronic Structure Theory*, US Department of Energy (DOE), \$10,000

FUNDED FACULTY RESEARCH

March—September 2012, continued

- *ES12: The 24th Annual Workshop on Recent Developments in Electronic Structure Theory*, Army Research Office (ARO), \$5,000

Oana Jurchescu

- *High-Conductivity in Binary Organic Single Crystals for Electronic Applications*, NSF/University of North Carolina-Chapel Hill (UNC-CH), \$62,659
- *NSF-NIST Collaborative Research on Electrical and Optical Properties of Novel Binary Donor-Acceptor Compounds*, NSF/UNC-CH, \$12,466
- *Summer Undergraduate Research Fellowship (SURF), NIST Gaithersburg Programs*, National Institute of Standards and Technology (NIST), \$8,531

Daniel B. Kim-Shapiro

- *Role of Nitrite Reduction to NO by Hemoglobin in Control of Fetal Vascular Tone*, NIH/Loma Linda University Adventist Health Sciences Center, \$34,000
- *Storage Lesion in Banked Blood Due to Disruption of Nitric Oxide Homeostasis*, NIH/University of Pittsburgh, \$137,496
- *Myoglobin as a Nitrate Reductase that Regulates Hypoxic Cardiac NO Signaling*, NIH/University of Pittsburgh, \$27,413

Fred Salisbury

- *Targeting the MSH2-dependent Apoptotic Pathway*, NIH, \$286,388
- *Computational Biosciences from the Cancer Center Support Grant*, NIH/WFHS, \$10,273

Timo Thonhauser

- *CAREER: Improving Hydrogen Storage with van der Waals Density Functional Theory*, NSF, \$166,825
- *Novel Theoretical and Experimental Approaches for Understanding and Optimizing Hydrogen-sorbent Interactions in Metal Organic Framework Materials*, DOE/University of Texas-Dallas, \$94,990

Richard T. Williams, *Quantifying Recombination Dynamics in Sr12:Eu2 + with Material Variations: Mechanisms and Scintillator Optimization*, DOE/Fisk University, \$150,000

PSYCHOLOGY

William Fleeson with Michael Furr, **PSYCHOLOGY**, *Integrating Process and Structure in Borderline Personality Disorder*, NIH, \$31,536

Michael Furr, *Binge Drinking: Individual Difference in the Capacity to Alter Drinking Patterns*, NIH/University of Texas Health Science Center at San Antonio, \$12,440

Janine Jennings, *LIFE DMAQC*, NIH/WFHS, \$9,501

Lisa Kiang, with Steven J. Folmar, **ANTHROPOLOGY**, *Oppression and Mental Health in Nepal*, NSF, \$159,937

Eric R. Stone, *Aggregative Contingent Estimation System (ACES)*, Intelligence Advanced Research Projects Activity (IARPA)/Applied Research Associates, \$68,937

ROMANCE LANGUAGES

Roberta Morosini, *Networks and Knowledge: Synthesis and Innovation in the Muslim-Christian-Jewish Medieval Mediterranean*, NEH Summer Institute, Barcelona, 2012.

TRANSLATIONAL SCIENCE CENTER

Daniel B. Kim-Shapiro, **PHYSICS**

- *Exercise, Weight Loss, and Arterial Stiffness in Obese Older Adults*, American Heart Association/WFHS, \$16,174
- with Bruce King, **CHEMISTRY**, *Effects of Nitric Oxide in Sickle Cell Blood*, NIH, \$392,420

Z. SMITH REYNOLDS LIBRARY

Megan Mulder, *Religion in North Carolina Digital Collection*, State Library of North Carolina/Duke University, \$5,081

FUNDED FACULTY RESEARCH

February—September 2012, continued

(continued from front page)

Our new Associate Provost for Research, Chemistry Professor Bruce King, thanked his predecessor and mentor Mark Welker for many years of service in the Provost's Office as our first Chief Research Officer.

Michael Batalia and Steve Susalka of the Office of Technology Asset Management made presentations to Bruce King and Mark Welker for their new patents, *C-nitroso-derived nitroxyl donors* (US Patent no. 7,989,652 issued 2011-08-02) and *Compounds and compositions containing silicon and/ or other heteroatoms and/ or metals and methods of making and using them* (US Patent no. 8,110,695 issued 2012-02-07), respectively.



Errin Fulp, Computer Science, who was unable to attend, will receive plaques for his inventions, *Methods, systems, and computer program products for network firewall policy optimization* (US Patent no. 8,042,167 issued 2011-10-18) and *Method, systems, and computer program products for implementing function-parallel network firewall* (US Patent no. 8,037,517 issued 2011-10-11).

Fiscal Year 2013 is starting off quite well. Timo Thonhauser, Physics, received a prestigious NSF CAREER grant, and first quarter awards and proposal submissions are up over last year. And ... the Provost Elite Team finished 2nd among faculty/ staff teams in the Hit the Bricks fundraiser with 311 laps. Our team tied with the Dean's Office in the amount raised to support the Brian Piccolo Cancer Research Fund!

COMPLIANCE HOTLINE

Call 1-877-880-7888 or email www.tnwinc.com/Reportline/International/ to report suspected violations of laws, regulations, rules, policies, procedures, ethics, or other information anonymously. The operator, who is not a university employee, will report your concerns to the University Compliance Office.

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**Research
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