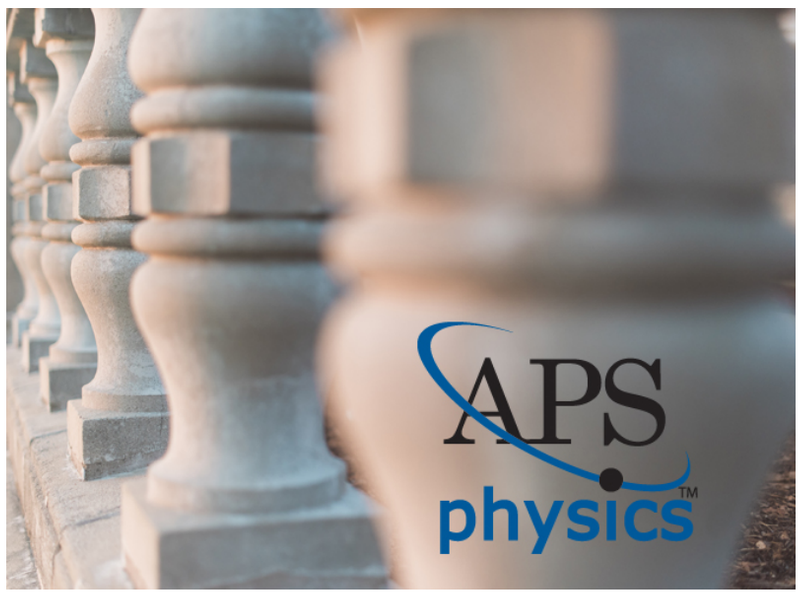
SCIENCE
TEXAS A&M UNIVERSITY



Four Texas A&M Faculty Elected as American Physical Society Fellows

December 17, 2015

> "The APS is the primary professional society for physicists, but each year less than one-half of one percent of the current membership is recognized in this way. We are incredibly honored to have four members of our faculty elected this year. In each case, these individuals have have made exceptional contributions through outstanding research."
> — George R. Welch, Texas A&M physicist

COLLEGE STATION --

Four Texas A&M University professors -- Artem G. Abanov, Alexei V. Sokolov, David Toback and Vladislav V. Yakovlev -- have been elected as 2015 Fellows of the **American Physical Society (APS)**, the world's largest organization of physicists.

No more than one-half of one percent of the organization's current membership is selected by their peers each year for inclusion in the APS Fellowship Program, which was created to recognize advances in knowledge through original research and publication, innovative contributions in the application of physics to science and technology, and significant contributions to the teaching of physics or service.

Abanov, an associate professor physics and astronomy who joined the Texas A&M faculty in 2005, is cited "for contributions to the theory of quantum phase transitions, in particular for the interaction of electrons with spin fluctuations."

Sokolov, a professor of physics and astronomy and the inaugural holder of the Stephen E. Harris Professorship in Quantum Optics, has been on faculty at Texas A&M since 2002 and is cited "for insightful work on quantum molecular coherence, ultrafast optics, and laser spectroscopy."

Toback, a professor of physics and astronomy and Thaman Professor for Undergraduate Teaching Excellence who joined the Texas A&M faculty in 2000, is cited "for pioneering work on searches for new particles and leadership of the CDF experiment."

Yakovlev, a professor of biomedical engineering who holds a joint appointment in physics and astronomy, has been on faculty at Texas A&M since 2012 and is cited "for outstanding contributions to the development of ultrafast lasers, optical instrumentation, and the resulting spectroscopic advances that have important applications."

Sokolov and Yakovlev each were nominated upon the recommendation of the APS Division of Atomic, Molecular and Optical Physics, while Abanov and Toback were similarly endorsed by the APS Divsions of Condensed Matter Physics and Particles and Fields, respectively. In addition to being recognized in an upcoming issue of *APS News*, all four will be presented with their fellowship certificates at the APS March Meeting 2016, set for March 14-18 in Baltimore.

"Being elected as a Fellow of the American Physical Society is a very high distinction," said George R. Welch, professor and head of the **Department of Physics and Astronomy**. "The APS is the primary professional society for physicists, but each year less than one-half of one percent of the current membership is recognized in this way. We are incredibly honored to have four members of our faculty elected this year. In each case, these individuals have have made exceptional contributions through outstanding research."

Abanov is a respected authority on condensed matter physics, a vast field that provides endless opportunities -- in his case, the intense study of physical phenomena where "more is different." His group focuses on many body systems, which often exhibit behavior that is quite different from that of their individual components. His primary research interests include correlated electrons, current-driven magnetic textures and domain walls, unstable growth of interfaces and current-drive magnetization dynamics in strongly spin-orbit coupled systems.

Sokolov, who is widely recognized for his experimental expertise in fields ranging from laser physics and nonlinear optics to ultrafast science and spectroscopy, is a key player in Texas A&M's world-class quantum optics group within the **Institute for Quantum Science and Engineering (IQSE)**. His research interests center around applications of molecular coherence to quantum optics, ultrafast laser science and technology, including generation of sub-cycle optical pulses with prescribed temporal shape and studies of ultrafast atomic, molecular

Artem G. Abanov

Alexei V. Sokolov

and nuclear processes, as well as applications of quantum coherence in biological and defense-oriented areas.

Toback, a high-energy physics expert and veteran researcher in several related international collaborations, is a member of the **George P. and Cynthia Woods Mitchell Institute for Fundamental Physics and Astronomy**. His research focuses on the search for new fundamental particles at the world's highest-energy particle accelerators, the Fermilab Tevatron in Chicago and the Large Hadron Collider at CERN. Since June 2014, he has served as co-spokesperson for the CDF collaboration at Fermilab. On CDF, he serves as co-convener of the Top + Beyond the Standard Model Group and led the team that built the timing system for the CDF electromagnetic calorimeter, an important upgrade for Tevatron Run II. A decorated educator and science communicator, he is the author of the textbook *Big Bang, Black Holes, No Math*.

Yakolev, an international expert in biomedical engineering, quantum electronics and quantum bioscience, also is a member of IQSE. His research focuses on the development of new instrumentation for biomedical diagnostics and imaging, while his primary research interests include biomechanics on the microscale level; nanoscopic optical imaging of molecular and cellular structures; protein spectroscopy and structural dynamics; bioanalytical applications of optical technology and spectroscopy; and deep-tissue imaging and sensing.

To learn more about the American Physical Society or the APS Fellowship Program, go to **http://aps.org**.

For additional information about the Texas A&M Physics and Astronomy and related research programs, go to **http://physics.tamu.edu**.

#########

About Research at Texas A&M University: As one of the world's leading research institutions, Texas A&M is at the forefront in making significant contributions to scholarship and discovery, including that of science and technology. Research conducted at Texas A&M represented annual expenditures of more than $854 million in fiscal year 2014, ranking Texas A&M in the top 20 of the National Science Foundation's Higher Education Research and Development survey (2014). Texas A&M's research creates new knowledge that provides basic, fundamental and applied contributions resulting in many cases in economic benefits to the state, nation and world. To learn more, visit **http://research.tamu.edu**.

-aTm-

Contact: Shana K. Hutchins, (979) 862-1237 or shutchins@science.tamu.edu or Dr. George R. Welch, (979) 845-7717 or grw@tamu.edu

Hutchins Shana

David Toback

Vladislav V. Yakovlev