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Five Named 2008 AAAS Fellows

Three from Medicine and two from A&S are elected

*By Lisa De Nike and Maryalice Yakutchik
Homewood and Johns Hopkins Medicine*

Five Johns Hopkins University researchers have been elected by their peers as fellows of the American Association for the Advancement of Science. Jonathan Bagger, Ted Dawson, Barbara Landau, Jun Liu and Jeremy Nathans are among 486 new fellows around the world. Election as a fellow honors scientifically or socially distinguished efforts to advance science or its applications.

This year's fellows were announced in the "AAAS News & Notes" section of the journal *Science* on Dec. 19. New fellows will be presented with an official certificate and a gold and blue (representing science and engineering, respectively) rosette pin on Feb. 14 at the Fellows Forum during the 2009 AAAS Annual Meeting in Chicago.

As part of the section on physics, Jonathan Bagger was elected for distinguished contributions to the field of theoretical high-energy physics and for leadership of the U.S. high-energy physics community. Bagger is a Krieger-Eisenhower Professor in the Henry A. Rowland [Department of Physics and Astronomy](#) at the Zanvyl Krieger School of Arts and Sciences. He also serves as vice provost for graduate and postdoctoral programs and special projects.

Bagger's research centers on high-energy physics at the interface of theory and experiment, with current work focusing on supersymmetry and supergravity. He has twice been a member of the Institute for Advanced Study in Princeton. He has served on the National Research Council's Board on Physics and Astronomy and is vice chair of the Department of Energy/National Science Foundation High Energy Physics Advisory Panel.

He sits on the editorial board of *Physics Reports* and the *Journal of High Energy Physics* and is a fellow of the American Physical Society.

As part of the section on neuroscience, Ted Dawson of the School of Medicine was elected for distinguished contributions to research and leadership in our understanding of the molecular bases of neurodegenerative disease.

Dawson, a professor of [neurology and neuroscience](#), directs the Movement Disorders Center and the Neuroregeneration and Stem Cell programs in the Institute for Cell Engineering. Many advances in neurobiology of disease have stemmed from Dawson's work discovering the processes underlying nerve cell death and neurodegeneration. He has been instrumental in our understanding of how the gas nitric oxide damages nerve cells during stroke. Dawson's discoveries have led to innovative

approaches and enhanced the development of new agents to treat neurologic disorders, such as Parkinson's and Alzheimer's diseases, as well as other neurodegenerative disorders.

As part of the section on psychology, Barbara Landau was elected for her groundbreaking work into the origins and nature of human language and its development under a variety of biological and environmental conditions.

Landau is the Dick and Lydia Todd Professor and chair of the [Cognitive Science Department](#) at the Zanvyl Krieger School of Arts and Sciences. Her work focuses on language learning, spatial representation and the relationships between those foundational systems of knowledge. In particular, Landau investigates these issues in normally developing children and in people who have severe spatial impairments due to a rare genetic condition known as Williams syndrome. She serves on the board of scientific advisers for the American Psychological Association and the governing board of the Cognitive Science Society, and is a fellow of the Cognitive Science Society, American Psychological Society and American Psychological Association.

As part of the section on biological sciences, Jun O. Liu of the School of Medicine was elected for developing the use of small chemical probes in the elucidation of mechanisms of important processes in biology, including cell signaling, angiogenesis and cell proliferation. A professor of [pharmacology and molecular sciences](#) with a secondary appointment in [Oncology](#), Liu is interested in a molecular understanding of signaling and communication involved in immune system activation, cell death and cell growth in the context of growing new blood vessels. Angiogenesis — formation of new blood vessels — is necessary for tumor growth and metastasis as well as several other human diseases. Inhibition of angiogenesis is emerging as a promising strategy for treating cancer. Liu's interdisciplinary approach to research involves a combination of tools and techniques from protein biochemistry and molecular and cell biology to synthetic organic chemistry.

As part of the section on biological sciences, Jeremy Nathans of the School of Medicine was elected for elegant investigations of human color vision, including isolating rhodopsin genes and determining the molecular bases for variation in color vision and for visual disorders. A professor of [molecular biology and genetics](#) and [ophthalmology](#), Nathans identified the genes that code for the three kinds of light-sensing pigment molecules found in the cone cells — one of the two types of photoreceptor cells in the retina, the other being rods. The pigments are critical for color vision, and Nathans has shown that alterations in these pigment genes are responsible for color blindness common in inherited variations in human color vision.

In more recent studies, Nathans discovered and characterized genes that control the normal development of the retina and determined how defects in these genes disrupt the function and survival of retinal cells. These studies have revealed several defects that lead to human retinal diseases including Stargardt disease, the most common type of macular degeneration in children and young adults. In collaboration with other Johns Hopkins researchers, he also determined the cause of the vitelliform type of macular dystrophy, showing that it is caused by abnormalities in a member of a previously unknown family of ion channels — proteins that allow ions to enter and exit cells.

The American Association for the Advancement of Science is the world's largest general scientific society, and publisher of the journal *Science*. AAAS was founded in 1848 and includes some 262 affiliated societies and academies of science, serving 10 million individuals. The nonprofit AAAS is open to all and fulfills its mission to "advance science and serve society" through initiatives in science policy, international programs, science education and more.

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