Science and Engineering Outstanding Researcher Award

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NEWS: Tulane University 2007 School of Science and Engineering Research Day and presentation of the Outstanding Researcher Award.

Tulane University's new School of Science and Engineering presented its first Outstanding Researcher award to physics Professor John Perdew. This event occurred on April 12, 2007 in conjunction with the School of Science and Engineering research day and Board of Advisors activities, held in the new Lavin-Bernick center.

Perdew presents the award lecture entitled: "Guessing the Rule for Nature's Glue"

John Perdew has been a physics professor at Tulane for nearly 30 years, in which time he has published 190 research articles in refereed journals and edited books, presented 80 invited talks at conferences, and supervised 9 completed Tulane Ph.D.'s as well as 11 postdoctoral fellows. He has enjoyed almost 30 years of National Science Foundation funding in the Division of Materials Research. The widespread applications of his work have made him one of the most-cited physicists in the world. He has been ranked 59th amongst the 1120 most-cited Physicists, 1981 – 1999, by the Institute for Scientific Information and his work has been recognized by his 2003 election to the International Academy of Quantum Molecular Science.

John has made many important contributions to the density functional theory of the electronic structure of materials, both in the discovery of exact conditions and in the construction of useful and accurate approximations. An early contribution was the

recognition of the self-interaction error of common density functionals and a proposal to correct it in his early publication, “Self-Interaction Correction to Density Functional Approximations for Many-Electron Systems.” This was the third most-cited (1893-2003) article in the principal American physics journals Physical Review, Physical Review Letters, and Reviews of Modern Physics. He has also constructed many widely-used approximations to the exchange-correlation energy, as in his publication, “Generalized Gradient Approximation Made Simple,” which has been the most-cited of all physics papers in the world published January 1, 1994 to June 30, 2004. This article alone has been cited more than 5300 times.

John graduated Summa Cum Laude from Gettysburg College, majoring in Physics and Math and earned his Ph.D. in Physics from Cornell University in 1971.

Recognizing the need to honor deserving scholars and to increase the visibility of the school’s research activity, the Outstanding Researcher Award is presented upon the recommendation of the Research and Graduate Studies Committee. The Award is given according to the following criteria:

- The quality and quantity of publications, with particular emphasis given to archival publications, research treatises and citations of published work.
- The total amount of research funding.
- The contributions to the mission of the university in graduate education, training and mentoring, including graduate students and post-doctoral scholars.
- National and international recognition as evidenced by honors and awards, journal editorships and participation in editorial boards, national and international scientific committees and boards, and professional patents.
- Dr. Perdew’s well attended award lecture presentation was entitled: “ Guessing the Rule for Nature’s Glue ”. The lecture covered the relations between this natural glue, electron density and computer predictions of what atoms, molecules and solids can exist and with what properties.

The research day events also included poster presentations covering a variety of topics dealing with clonal variance in transgenic stem and proginator cells from bone marrow stroma, design and characterization of a novel glaucoma drainage device, effect of compatibilizer blends on mechanical and thermal properties of HDPE/wood/clay nanocomposites, hydration effects on skin microstructure and implications to enhanced transdermal delivery of biomacromolecules, material transfer in the formation of manufactured nanoparticles, pediatric somatization and

anxiety sensitivity following hurricane Katrina, to name just a few.

The poster sessions were well attended by fellow students, faculty and members of the School of Science and Engineering Board of Advisors.