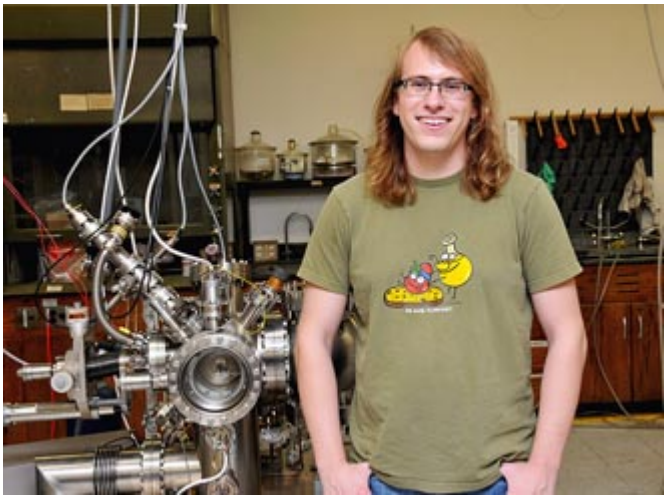
Student Brainstorms With Nobel Laureates

June 22, 2009 9:45 AM Kathryn Hobgood
khobgood@tulane.edu

Peter Jacobson, a graduate student in the Tulane Department of Physics, will be part of a brainstorming session with some of the world's greatest minds this summer. Jacobson has been invited to participate in the 59th meeting of Nobel laureates, which will be held in Lindau, Germany, on June 28â“July 3.



Physics graduate student Peter Jacobson will join other young researchers to mingle with Nobel Laureates from around the world. (Photo by Sally Asher)

In Lindau, a picturesque island city located north of the Swiss Alps, Jacobson will mingle with chemistry, physics and physiology/medicine laureates as well as a select group of students from around the world.

The laureates will lecture on the topic of their choice in the mornings and participate in less formal, small-group discussions with the students in the afternoons and evenings.

Jacobson, who hails from Lincoln, Neb., says he is looking forward to meeting like-minded young researchers and being in the stimulating intellectual environment.

He's especially excited about meeting the laureates who have knowledge in his research area of "surface science," the study of physical and chemical phenomena that occur at the interface of two phases (such as solid-liquid, solid-gas, liquid-gas and so forth).

"Surface science is an interdisciplinary field, mainly drawing from physics, chemistry and material science," explains Jacobson. "Each of these areas has sub-disciplines in surface science, which may range from understanding the properties of lipid bilayers which are found in biological systems to novel electronic properties at very low temperatures."

In Lindau, Jacobson will have the opportunity to meet Gerhard Ertl, a physicist by training who won the Nobel Prize in chemistry in 2007 for surface science. "It will be very interesting to hear his perspective on surface science and what he rates as the great unanswered questions and challenges," says Jacobson.

At Tulane, Jacobson conducts his research under the guidance of physics professor Ulrike Diebold, whose group focuses on understanding atomic scale properties of metal oxide surfaces (such as titanium, tin and zinc). Using a powerful scanning tunneling microscope, the group can see individual atoms and observe their behavior on the surfaces of these materials. Fundamental knowledge from these investigations has impact in such diverse fields as the semiconductor industry, energy processing and even food processing.

Says Jacobson, "I have done most of my work on phenolic molecules, such as catechol, sometimes used to anchor larger molecules onto the surface of titanium oxide for use in dye-sensitized solar cells. These are a promising way to harvest light for energy and surface science can give us fundamental insights."

The young physics researcher shows exceptional promise to become a first-rate scientist, says Diebold. "Being selected as a participant for the Lindau meeting with Nobel laureates is a well-deserved honor for him and reflects well on the high standards of our graduate programs at Tulane," she adds.

The Lindau Nobel Laureate Meetings have been held since 1951 as a forum for the

transfer of knowledge between generations of scientists. Jacobson was nominated by Tulane to attend the meeting under the auspices of an award program administered by the Oak Ridge Associated Universities, of which Tulane is a member.