Laudatio for Professor Abhay Ashtekar

Professor Ashtekar is a remarkable figure in the field of Einstein's gravity. This being the Einstein Year and, moreover, the World Year of Physics, one can hardly think of anyone more fitting to be honoured for his research and his achievements – achievements that have influenced the most varied aspects of gravitational theory in a profound way.

Prof. Ashtekar is the Eberly Professor of Physics and the Director of the Institute for Gravitational Physics and Geometry at Penn State University in the United States. His research in gravitational theory is notable for its breadth, covering quantum gravity and generalizations of quantum mechanics, but also classical general relativity, the mathematical theory of black holes and gravitational waves.

Our view of the world has undergone many revisions in the past, two of which, arguably the most revolutionary, were initiated by Einstein in his annus mirabilis, 1905. For one thing, the theory of special relativity turned our notion of space and time on its ear for speeds approaching that of light. At the same time, Einstein's explanation of the photoelectric effect heralded the coming of quantum theory. Many of the best minds in theoretical physics, including Einstein himself, have been trying for years to find a unified theory of relativity and quantum theory. Such a theory, often called quantum gravity, could, for example, provide an explanation for the initial moments of our universe just after the big bang.

Especially noteworthy is Prof. Ashtekar's work on the canonical quantization of gravitation, which is based upon a reformulation of Einstein's field equations that Ashtekar presented 1986. It has proved to be a fruitful approach to the difficult problem

of quantum gravity and has fostered a new field of study. Prof. Ashtekar was much ahead of his time in hisnon-perturbative treatment of gravitational interaction, which has, for example, now become a central topic in string theory. It is all the more impressive that he has made important contributions not only to quantum gravity, but also to classical, mathematical relativity.

Prof. Ashtekar's productivity is reflected in the 180 articles and six books he has written. The SPIRES database finds roughly 5000 citations of his work, including two articles cited more than 500 times each, making him one of the most cited researchers in the field of relativity. His list of talks includes more than 50 plenary talks at international conferences.

Prof. Ashtekar's many distinctions include the first prize of the Gravity Research Foundation in 1977, the Alfred P. Sloan Research Fellowship from 1981 to 1985, the election to the Governing Council of the International Society for General Relativity from 1989 to 1998, the Wasserstrom Award for Graduate Teaching and Advising at Syracuse University in 1992, the appointment as Honorary Fellow of the Indian Academy of Sciences in 1996, the appointment as Fellow of the American Physical Society in 1997, the position as Chair of the Topical Group in Gravitation of the American Physical Society from 2000 to 2002 and as the Sir C.V. Raman Chair of the Indian Academy of Sciences in 2004 as well as being granted the Forschungspreis of the Alexander von Humboldt Foundation in 2004.

Gravitational theory is well represented here at the Friedrich Schiller University in Jena, which is notably the coordinating university of the Transregional Collaborative Research Centre "Gravitational Wave Astronomy". This honorary doctorate is meant to signify that Einstein's science is alive and well in Ger-

many and Jena. It is also meant as a statement of the intention to strengthen through Prof. Ashtekar our ties to leading international research.

The Friedrich Schiller University is pleased and honoured to be able to add Prof. Ashtekar to its long and distinguished list of honorary doctors.

Jena on the 27^{th} of September, 2005