TECHNISCHE UNIVERSITÄT DRESDEN

Bereich Mathematik und Naturwissenschaften Fachrichtung Physik

PHYSIKALISCHES KOLLOQUIUM

Referent: **Prof. Dr. Marek Kowalski**
Humboldt-Universität zu Berlin und DESY

Thema: **The Dark Universe: An inventory of the Unknown**

Zeit und Ort: Dienstag, 17.01.2017, 16:40 Uhr
Recknagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

Leiter: Prof. Dr. Michael Kobel

Kurzfassung: In the year 1998 two independent teams - using Supernovae Type Ia as distance indicators - discovered that the Universe is undergoing a phase of accelerated expansion. This acceleration is generally attributed to the existence of Dark Energy and poses a major challenge to our understanding of fundamental physics. But this is not the only part we don't understand. The nature of Dark Matter and even the role of the Neutrino are not yet settled. After a general introduction, I will present advances in the current understanding of Dark Energy and other cosmic ingredients required to understand the evolution of our Universe.

Kurzbiographie: In June 2014, Marek Kowalski officially took up office as a Leading Scientist in the IceCube group in Zeuthen. He graduated there in 2004 within IceCube's predecessor project, AMANDA, and is thus an old hand at DESY. After his professorships at Lawrence Berkeley Laboratory in the USA, Humboldt University (HU) of Berlin and his W3 professorship at the University of Bonn, he now assumes a joint professorship at HU Berlin and DESY. His focus is on the future expansion of IceCube at the geographic South Pole. Apart from his research in neutrino astronomy and observational cosmology, Kowalski will bring an ambitious new project to DESY: the Zwicky Transient Facility (ZTF) – planned in cooperation with Caltech (USA), the Oscar Klein Centre (Sweden) and the Weizmann Institute (Israel) - is an instrument for an all-sky survey with a novel 1.6-gigapixel camera. Kowalski will take data allowing pioneering observations in supernova cosmology, that are also important for neutrino astronomy.