TECHNISCHE UNIVERSITÄT DRESDEN

Bereich Mathematik und Naturwissenschaften Fakultät Physik

PHYSIKALISCHES KOLLOQUIUM

Referent: **Prof. Dr. Andreas Korn**
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Thema: **Lithium in the early universe**

Zeit und Ort: Dienstag, 14.5.2019, 16:40 Uhr
Recknagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

Leiter: Dr. Daniel Bemmerer

Kurzfassung: In this talk, I will review the history of Big-Bang Nucleosythesis (BBN), from theoretical considerations to precision measurements. BBN describes the short phase of cosmic evolution minutes after the Big Bang in which the first nuclei (D, He and Li) were fused from protons (H) and neutron. Detailed studies of the Cosmic Microwave Background since the turn of the century have put new constraints on BBN that have led to some important revisions; in particular they point to a marked discrepancy between the predicted primordial Li-7 abundance and the measured surface abundances of lithium in very old stars. Furthermore, Li-6 was found to be present in these stars in amount exceeding BBN predictions by orders of magnitude. Are these discrepancies signs of physics beyond the Lambda-CDM model of cosmology and/or the Standard Model of particle physics? Or do they rather tell us something about our ability to correctly interpret stellar spectra?

Biographie: AK holds a degree in physics from Heidelberg University and a Master's of astrophysics from the University of London. He received his PhD from the University of Munich (LMU) in 2002 and was subsequently a postdoc at the Max Planck Institute for extraterrestrial Physics (MPE).
From 2003 to 2006, he was a Leopoldina fellow at Uppsala University where he is now a staff member. His main research interest is the nuclear history of the universe and the chemical evolution of the Milky Way system accessible through quantitative stellar spectroscopy. He leads the Uppsala-based scientific efforts within ESA's cornerstone mission Gaia (2013-present) mapping the 3D positions, motions and physical properties of 1.7 billion stars (e.g. Brown et al. 2018, A&A 616, 1).