



## PHYSIKALISCHES KOLLOQUIUM

*Vortrag:* **Prof. Dr. Jochen Weller**  
Universitäts-Sternwarte München,  
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*Thema:* **Cosmology with Clusters of Galaxies**

*Zeit und Ort:* Dienstag, 12.4.2022, 16:40 Uhr - Hybride Veranstaltung

**Vortrag vor Ort in REC/C213**

Online Teilnahme möglich:

Zoom-Meeting: Meeting-ID: 819 5507 7280 / Kenncode: PK-22!-JW

<https://tu-dresden.zoom.us/j/81955077280?pwd=NUdNVTZ3N0U3SWZGNWY4SElvRmJodz09>

*Leitung:* Dr. Frank Siegert

*Kurzfassung:* The current standard model of cosmology has been established with different observational probes, such as the cosmic microwave background, the large-scale distribution of galaxies and direct observations of the expansion rate with, for example, Type Ia Supernovae. The standard model requires two, mainly unknown, ingredients in the form of dark matter and a cosmological constant, which drives the observed accelerated expansion of the Universe. Clusters of Galaxies, being the most massive structures in the Universe, provide a complementary probe of the structure formation process because of their extreme sensitivity to the matter content and growth of structures. In this talk I will introduce how clusters of galaxies can be used to probe the cosmological model. I will review how clusters of galaxies have been used so far to constrain the cosmological model with the Planck satellite and the Dark Energy Survey. I will further describe the major challenges for exploiting clusters of galaxies to constrain cosmology and lay out what they can probe beyond the standard model of cosmology. I will also give a preview what will be possible in the future with the ongoing eRosita x-ray satellite and the Euclid satellite mission of ESA.

*Biographie:* After the Diploma in Physics at the University of Karlsruhe in 1996, I received my PhD degree from Imperial College London in 2000. I was then a research assistant in Stephen Hawking's group at Cambridge University before moving to the Institute of Astronomy at the same University in 2002. From 2004-2005 I was David Schramm Fellow at Fermilab, USA. Before becoming a Professor at LMU München in 2008, I was a lecturer at University College London. My main research is on the interface between observational and theoretical cosmology. I am a member of many astrophysical survey campaigns and currently most prominently a founding member of ESA's Euclid satellite mission.

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