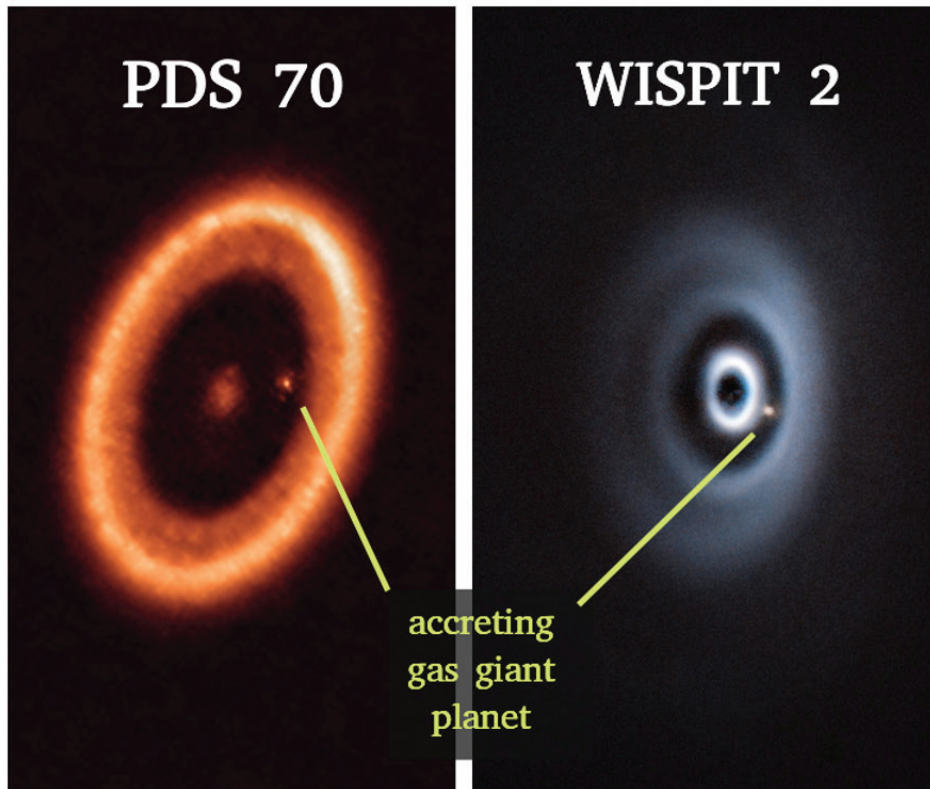


<https://uni-due.zoom-x.de/j/64228670246?pwd=RjVQeFNIUkRKrkpiNVpKYXhJaFNLdz09> (gilt für alle Vorträge)

Gas Giant Planets Caught While Feeding

Dr Gabriel-Dominique Marleau, University of Duisburg-Essen and University of Bern



In just the last few years, an exciting new field has opened up: detecting super-Jupiters while they are in the process of accreting, that is, gaining mass. Ground- and space-based imaging and spectroscopy are yielding a new and unique view on long-proposed formation scenarios, with hopes of answering open questions concerning the physical processes at play. The accretion shocks at the surface of a planet and the disc surrounding it can be sources of hydrogen-line emission, detected at several planetary-mass accretors. Separately, if a young forming planet has a strong magnetic field, this field might be able to channel the gas from the vicinity of the planet onto the planet, as for young stars. This too should lead to line emission. We present an overview of recent observations in this rapidly-moving field and review the relevant theory. We discuss how the James Webb Space Telescope serves to study even faint accretion tracers at planetary-mass objects. This gives tantalising clues about local mass reservoirs that must be present but are not always seen. We put this in context of the not mutually exclusive accretion frameworks. We also present predictions of high-resolution profiles of the hydrogen lines accessible to METIS, the first-generation near-infrared spectrograph ($R \sim 100,000$) on the Extremely Large Telescope (ELT), and discuss their observability.