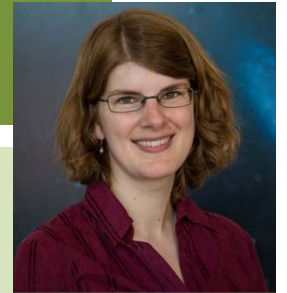




PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik der Goethe-Universität Frankfurt

Mittwoch, den 11.01.2023, 16 Uhr c.t.
Großer Hörsaal, Raum _0.111, Max-von-Laue-Str. 1



Prof. Dr. Camilla J. Hansen

Institut für Angewandte Physik
Johann Wolfgang Goethe-Universität Frankfurt

Tracing the origin of the Elements using ancient stars

Chemical abundances derived from stellar spectra can be used to understand a number of physical quantities in the Universe. The origin of the elements formed after the Big Bang, heavy element nucleosynthesis, the enrichment from the First Stars, and chemical evolution of the Galaxy - these are some of the many aspects that stellar spectroscopy of old stars can help us understand.

Metal-poor, old, unevolved stars are excellent tracers as they preserve the abundance pattern of the gas they were born from. I will show how we can trace and constrain the physics of early rapid neutron-capture process events, and how we can trace the r-process observationally both directly and indirectly. Moreover, I will show how low-mass stars can help us map the nature of the long-gone First Stars and place constraints on, e.g., their mass. The low-mass stars we are analysing with world-class facilities, like the Very Large Telescope in Chile, allow us to chemically tag the early Universe at a redshift corresponding to $z \sim 7$. In this quest, we have recently discovered a special carbon-rich group of stars that carry insight into the nature of the First stars.

Die Dozenten der Physik

local host: Prof. Dr. Rene Reifarth | reifarth@physik.uni-frankfurt.de