



# Innsbruck Physics Colloquium

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## Asteroseismology of pre-main sequence stars



Stars have been born countless times in our Universe in the past. The properties that stars obtain at birth such as initial mass, composition and angular momentum determine their complete lives until their deaths.

But our theoretical understanding of early stellar evolution contains a lot of unsolved questions as there are many physical processes that are either not well-understood or not taken into account properly in theoretical models.

Asteroseismology – the study of stellar oscillations – is a powerful technique to investigate the interiors of pulsating stars through the analysis of their pulsation modes. Asteroseismology of pre-main sequence stars (i.e. before the onset of hydrogen core burning) is a relatively young research field that has advanced in recent years due to dedicated observations and adaptations of theoretical model calculations. As of October 2017, we have discovered 75 young stars to be pressure and gravity mode pulsators of three different types. As the complete pre-MS evolution happens on comparably short time scales (i.e., a few million to a few tens of thousands of years), we can measure how the interior structures of young stars changes during their early evolution.

Improving our understanding of the physical processes acting in these early evolutionary stages will have a significant impact on our theoretical concept for stars in all later phases from the main sequence until their final stages.

**Tuesday, 31.10.2017, at 17:15 in lecture hall C**

Innsbruck Physics Colloquium, Organisation: M. Beyer, H.-C. Nägerl, A. Reimer