Seminar by

Dr. Dan Whalen,

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Monday, 29. April 2019, at 15:00 Uhr in HS

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The First SNe: Prospects for Detection, Enrichment of the Early Cosmos, and Connections to the First Planets

Population III (Pop III) supernovae (SNe) were the first great nucleosynthetic engines in the universe, forging the heavy elements needed for the later formation of planets and life. They are also the ultimate cosmic lighthouses, able to pierce the current observational desert from redshift $z \sim 10 - 20$ and reveal the properties of the first stars at cosmic dawn 100 Myr after the Big Bang. I will present numerical simulations of the first cosmic explosions, their light curves, and how they polluted the early universe with the first metals. I will also discuss the likely sites for the formation of the first water in the universe in these events and our plans to connect the first SNe to the first planets to understand at what epoch life may have arisen in the universe.