

Date: 19 Aug. 2012

Time: 09:30 - 11:00

Location: Room619

**Topic: The Atacama Large Millimeter/submillimeter Array (ALMA):  
Construction and Early Science**

**Speaker: Prof. Thijs de Graauw, director of the joint ALMA observatory (Chile)**



**Biography:** Thijs de Graauw has served as Director of the Atacama Large Millimeter/submillimeter Array (ALMA) since 2008. Before joining ALMA, he worked at the Netherlands Institute for Space Research (SRON), where he was responsible for the infrared and sub-millimeter research program. In this capacity he acted as Principal Investigator for Herschel-HIFI. He was also a professor at Leiden University, and was the Principal Investigator of the successful Short Wavelength Spectrometer (SWS), which flew on the Infrared Space Observatory, Herschel's predecessor. Recently the American Astronomical Society has awarded the 2012 Joseph Weber Award for Astronomical Instrumentation to Thijs de Graauw, for his leadership in the construction of powerful new astronomical instruments.

**Abstract:** The Atacama Large Millimeter/submillimeter Array (ALMA) is an international radio observatory under construction in the Atacama region of northern Chile. It is a partnership among Europe, North America and East Asia in cooperation with the Republic of Chile. ALMA is a combination of two arrays of high - precision submm antennas: one made of 50 12 - meter antennas which can be arranged in configurations with diameters ranging from about 150 meters to 16 km. The other, the ALMA compact Array (ACA), consists of twelve 7 - meter diameter antennas operating in closely - packed configurations of about 50m in diameter. In addition there will be four more 12 - meter antennas to provide the “zero - spacing” information, which is critical for making accurate images of more extended objects. All together the collecting area will be 6600 square meters. The antennas will be equipped with sensitive (sub)millimeter - wave receivers covering most of the frequency range from 35 to 950 GHz. State - of - the - art microwave, digital, photonic and software systems will be used to provide accurate reference timing for the Local Oscillators, to capture and digitize the signals, transfer them to the correlators as well as achieving accurate synchronization.

ALMA will enable the astronomical community with a (sub)mm facility to address key questions in all areas of astronomy. It will provide (sub)mm images with Hubble type detail, at a velocity resolution of ~100m/s over a wide bandwidth, with greater (10 - 100 times) sensitivity and fidelity. With more than 40 antennas ready, the construction is well underway and is expected to be completed by the end of 2013. This presentation provides an overview of its development, the status of its construction and first results of Early Science observations that started 9 months ago.

