

ALMA2019: Science Results and Cross-Facility Synergies



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Solar Astronomy with ALMA

Monday, October 14, 2019 5:55 PM (25 minutes)

Invited Talk

Abstract:

“Solar observing with ALMA is offered as a non-standard mode since Cycle 4. The requirements for such observations are different from many other observations with ALMA in the sense that the mapped atmospheric layers of the Sun evolve on very short timescales and the primary beam being filled with complex emission. High-cadence (snapshot) imaging is needed for such a dynamic target but is very challenging. The effort and time that went into developing the observing mode seems well justified given that ALMA provides a new complementary view at a part of the solar atmosphere that is still elusive in many aspects. The solar observing campaigns with ALMA are co-ordinated with a number of space-borne and ground-based telescopes covering the UV to IR range. Co-ordinating such strictly simultaneous multi-telescope observations adds another layer of complexity but results in rich data sets covering all layers of the solar atmosphere while probing different properties of the atmospheric gas. Since Cycle 4, the imaging procedures for solar ALMA observations have been significantly improved and science-ready data are being produced. I will give a brief overview over ALMA’s diagnostic potential for the Sun and challenges with carrying out solar observations and post-processing the data. First examples for Band 3 and Band 6 data are presented and illustrate the dynamic nature of the solar atmosphere, featuring, among other things, the imprint of magnetic fields and propagating shock waves.”

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Session Classification: Stellar Evolution