

Data needs for ALMA - Workshop in Cologne October 2009

From Data Cubes to Science: ancillary data and advanced tools for ALMA

ALMA will revolutionize many scientific areas by providing an unprecedented quantity and quality of high spatial and spectral resolution line data. This will allow detailed tests of astronomical models of star formation, galaxy formation and many others much more stringently than possible with data from current instruments. To do this, the models (e.g. radiative transfer programs) need to be of similar quality. Additionally, easy ways of comparing and visualizing models and data must exist. The models need to have access to fundamental physical data, such as molecular and atomic line frequencies and strengths, collision rates, dust properties etc. While producing the models themselves is a science activity, adapting them for use with ALMA data, and making them available to a larger community (including testing, documentation etc.) is not, particularly if the community aimed for is the larger astronomical community, and not only millimeter experts.

In order to optimize the science output from ALMA, there is therefore a need to produce and gather ancillary data and make them available to ALMA users, as well as adapting and making available scientific models for use by the ALMA community at large. While some efforts along these lines exist (CDMS, Splatalogue, BASECOL, LAMDA databases, RATRAN radiative transfer programs), there is a lot of duplicate effort, and the ease of use for both data and models is not at the level desired. This workshop will bring laboratory physicists, chemists and astronomers as providers of data and models together with astronomers as customers to discuss data and modeling needs and strategies of developing common databases both of physical data and models, usable with ALMA data.

The workshop will take place in Cologne (see [Logistics](#) [1] for details) from October 5 to 7, 2009.

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