



**FIFTY AU STUDY OF THE PHYSICS AND CHEMISTRY OF
PROTOSUN ANALOGUES
(FAUST)**

<http://stars.riken.jp/faust/fausthome.html>

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FAUST is the ALMA large project approved in Cycle 6 (2018). The huge variety of planetary systems discovered in recent decades likely depends on the early history of their formation. The FAUST Large Program focuses specifically on the early history of Solar-like protostars and their chemical diversity at scales of ~ 50 au, where planets are expected to form. In particular, the goal of the project is to reveal and quantify the variety of chemical composition of the envelope/disk system at scales of 50 au in a sample of Class 0 and I protostars representative of the chemical diversity observed at larger scales. For each source, 50 au spatial resolution observations of a set of molecules able to:

- (1) disentangle the components of the 50-2000 au envelope/disk system
- (2) characterize the organic complexity in each of them
- (3) probe their ionization structure
- (4) measure their molecular deuteration.

The output will be a homogeneous database of thousands of images from different lines and species, i.e., an unprecedented source-survey of the chemical diversity of Solar-like protostars at 50 au scales. FAUST will provide the community with a legacy dataset that will be a milestone for astrochemistry and star formation studies.



FAUST Kick-off meeting, Tokyo, 2018 September