

## **ESPRIT - A heterodyne interferometer for the far-infrared wavelength region**

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One of the major topics in modern astrophysics is the study of the formation of planets. The discovery of exoplanetary systems much different from our own Solar System shows that our knowledge of the formation process of such systems is very limited. Early ALMA observations have shown that the distribution of cold dust in protoplanetary disks is not very symmetric and shows cold dust traps. It is, however, not only the dust that is important. Water plays a large role as well. It provides stickyness to dust surfaces through built-up ice layers and therefore may be a crucial factor in coming from dust particles to pebbles to planetoids. Studying ice will remain very difficult and a much better way of studying the water is through velocity resolved low lying rotational lines of the gas-phase water. ALMA will not be able to access these lines so a space based heterodyne interferometer is necessary. I will show the main characteristics of the ESPRIT concepts and intend to go a little bit deeper in the data flow within the instrument