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Título: Protoplanetary disk components from the study of the most pristine chondrites

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Resumen:

The components of non-differentiated meteorites so-called chondrites are direct evidence of the materials forming the protoplanetary disk 4.5 Gyr ago. These first solids were preserved in their parent bodies because they were never exposed to a high degree of thermal metamorphism [1]. In those primitive meteorites were identified stellar grains, and isotopic anomalies that provide information on the stellar environment where the Sun formed. Up to date 15 chondrite groups have been identified [1] and designated with one or two letter symbol and have a characteristic chemical composition [1]. The evident chemical differences among the chondrite groups led to the idea that each group represents rocks coming from a different reservoir [2,3].

Evidence of fast growth of planetesimals in HL Tau protoplanetary disk has been found using ALMA [4]. It suggests that the accretion of materials occurred probably faster than previously thought, and opens the possibility of an inner disk formed by rings from which the different groups of chondrites accreted [5,6]. We will revisit current data about the formation ages of chondritic parent bodies in order to compare with observed ring time scales. From the bulk components of chondrite groups, we can likely infer the existence of size-sorting processes at work in the inner disk. In fact, it has been found that gas-melt interaction played a key role in the evolution of mineralogy, bulk chemical and isotopic compositions of chondrules [5]. Therefore, the size and composition of chondrite components can provide valuable information about the physico-chemical conditions in protoplanetary disks.

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