

Vendredi 2 février 2018 à 11h (IAS, bâtiment 121, salle 1-2-3)

Identification of a primordial asteroid family constrains the original planetesimal population

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A quarter of known asteroids is associated with more than 100 distinct asteroid families, meaning that these asteroids originate as impact fragments from the family parent bodies. The determination of which asteroids of the remaining population are members of undiscovered families, or accreted as planetesimals from the protoplanetary disk, would constrain a critical phase of planetary formation by unveiling the unknown planetesimal size distribution. We discovered a 4-billion-year-old asteroid family extending across the entire inner part of the main belt whose members include most of the dark asteroids previously unlinked to families. This allows us to identify some original planetesimals, which are all larger than 35 kilometers, supporting the view of asteroids being born big. Their number matches the known distinct meteorite parent bodies.