Séminaire organisé par

AIM &Le service d'Astrophysique
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HYDROSTATIC STRUCTURE IN THE INTERSTELLAR MEDIUM

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Our best description of the interstellar medium is turbulent. However, unlike the familiar turbulence that we encounter on Earth, interstellar turbulence is modified by self-gravity which can either maintain clouds in approximate hydrostatic equilibrium or cause them to collapse into stars. In either case, clouds dominated by self-gravity separate out of the turbulent flow to become individual dynamical entities. These clouds control their own evolution and are no longer dominated by the inertial forces of the larger-scale turbulence. Observationally, we find quasi-hydrostatic clouds in regions with weaker turbulence such as low mass star forming regions, and clouds in near free-fall collapse in high-mass star-forming regions. But the interplay between turbulence and self-gravity is not well understood. Numerical hydrodynamic simulations of interstellar turbulence can easily create collapsing clouds, but have so far failed to produce quasi-hydrostatic clouds. For small clouds in low-mass star-forming regions, observers continue to find the hydrostatic models both uniquely predictive, these clouds cannot be described in any other way, and usefully predictive. After a brief review, I will describe some of our own recent research on the starless cores, clouds of a few solar masses, that are well described by hydrostatic models.

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10h00 Salle Galilée bât 713 - Orme des Merisiers

Le petit-déjeuner précèdera le séminaire

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