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Probing local anisotropies using Type la Supernovae data

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A large variety of cosmological observations has validated the Λ CDM model as the leading one in driving the dynamics of the Universe. This model requires the validity of several assumptions: the Cosmological Principle (homogeneity and isotropy at large scales). Despite numerous successes, the standard model is facing some challenges like the detection of large scale velocity flows.

Type Ia supernovae (SNe Ia) are cosmological probe that allows to map the Universe at different scales and measure its dynamics. The new data set from the Zwicky Transient Facility (ZTF) at z < 0.1 constitutes a unique sample to investigate potential anisotropies in the nearby Universe. I will present my current work on the detection of bulk flows and the systematics involved using ZTF data and simulations.

Auteur principal: AMENOUCHE, Melissa (Laboratoire de Physique de Clermont)

Orateur: AMENOUCHE, Melissa (Laboratoire de Physique de Clermont)

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