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Cosmography of Laniakea: Type Ia supernovae, peculiar velocities and dark matter

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We are currently performing a Type Ia supernova (SN Ia) near-infrared (NIR) imaging survey in J- and H-bands at NOT, which combined with the FLOWS project efforts of building a sample of 10^3 SNe Ia observed in the NIR, will demonstrate the ability to get systematics-limited (better than 3%) distances with minimal resources, and expand our view of Laniakea out to z=0.1. Our planned analysis will make use of a state-of-the-art techniques that we have pioneered, and will employ a new NIR spectral template to compute K-corrections, offering the most significant reductions in systematics to date. The outcome of this study will include a measurement of the local Hubble constant, identify the location of the major dark matter (DM) concentration driving peculiar motion relative to the smooth Hubble flow, and in doing so will better determine how DM clusters on intermediate scales and provide significant improvements on the measurement of sigma8. Our data set will have a legacy value to the community as it will significantly extend upon numbers of previous studies. In this talk, I will summarize the project and present some preliminary results.

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