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## KiDS+VIKING: Cosmic shear tomography with optical+infrared data

*Tuesday, 3 September 2019 14:55 (25 minutes)*

In this talk I will present new cosmic shear results based on the combined KiDS optical and VIKING infrared data over an area of 450 square degrees. I will show how the crucial redshift calibration benefits from the extended wavelength coverage and how this leads to more robust cosmological conclusions. The results will be put into context and compared to findings from the two other big cosmic shear experiments (HSC and DES) and other cosmological probes, most importantly the Planck Legacy CMB results that show some tension to recent cosmic shear measurements. I will present brand-new results from a Self-Organised-Map-based calibration of the KiDS+VIKING photometric redshifts that implements the baseline plan for the Euclid space mission, tests on realistic simulations, and how all of this influences the cosmological conclusions. Through a careful re-assessment of the HSC and DES results I will show that the discrepancies in large-scale-structure parameters we are seeing today are approaching a level of significance that is similar to the tension in the Hubble constant. Taken together this might hint at a serious problem of the standard  $\Lambda$ CDM paradigm in simultaneously explaining early- and late-time cosmic structure formation.

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