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An independent route to cosmological distances: SBF with AO

The determination of many physical characteristics of structures in the Universe (luminosity, mass, dynamical timescales, star-formation rate, etc.) relies on the previous knowledge of a distance. The SBF method, with typical distance errors ≤5% has emerged as the most precise and reliable distance indicator for early-type galaxies out to ~150 Mpc.

The coupling of the SBF method with the AO supported imaging tools of future generations of ground-based ≥30m-class telescopes will highly supersede the present distance limits, reaching z~0.3 and beyond. Hence, SBF together with AO imaging data will have the potential of reaching the distances needed to provide interesting cosmological constraints independent from the classical type-Ia supernovae path.

In my talk I will briefly describe the method and the possible applications with future AO-assisted instruments.

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