Introduction

• Galaxy Sizes are a critical ingredient of most evolutionary scenarios.
• However, line of sight effects, including dust, can cause significant size variations and bias the interpretation of various galaxy properties and scaling relations.

Data & Method

• We study the variation of sizes as a function of inclination for Illustris galaxies. Mock SDSS gri images are created using SUNRISE for 95 simulated galaxies [1, 2]
• 19 images per galaxy are made at a constant azimuth and various inclinations.
• Stellar populations are invoked in an optically thin (no dust) medium.
• Surface photometry is performed on ~1700 images to derive sizes, brightness's and concentrations. These quantities are tested for their inclination dependence.

Results and Future

• Half light radii remain nearly constant for lower mass galaxies; however, they can decrease by ~6% for massive galaxies as a function of inclination (see top panel in figure).
• Isophotal radii, as expected, show an opposite trend: they increase with inclination for lower mass galaxies, and remain constant for more massive system.
• Even in a transparent case, radii fluctuations of ~10% can translate into ~25% uncertainties in the slope of common VRL scaling relations. [3]
• Adding dust attenuation (currently being investigated) considerably degrades the size measurement accuracy as well. [4]
• We are currently using zoom-in simulations (e.g. NIHAO) with various dust geometries to understand line-of-sight and radiation transfer effects on galaxy observables.

References: