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MAVISIM 2.0: Simulating the Photometric Capabilities of MAVIS

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As part of investigating the astrometric capabilities of MAVIS, we have developed the MAVIS Image Simulator (MAVISIM). MAVISIM was built with the intention to both, predict instrumental capabilities and assess the likelihood of achieving core science cases. In the first iteration of MAVISIM, we used a monochromatic Fourier-based PSF (Agapito et al., 2020) coupled with three realistic AO-induced errors to i) generate estimates of astrometric precision and, ii) show that MAVIS could recover the dynamical signature of an intermediate mass black hole in the centre of a globular cluster (Monty et al. submitted). In this talk I will describe plans for the second iteration of MAVISIM, using broadband, end-to-end PSFs generated in COMPASS (Cranney et al., 2020) to simulate realistic photometry. This version of MAVISIM will then be used to investigate the likelihood of recovering stellar population information from distant globular clusters (>100 kpc away). To extract photometry from our new MAVISIM images, we plan on investigating the use of both a classical technique (DAOPhot) and the emerging technique of PSF reconstruction (PSF-R).

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