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New insights into the population of young, massive stars near Sagittarius A*

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Prior studies have revealed the presence of young massive stars in the central 0.5 pc of the Galactic Centre, prompting questions about their properties and formation in the immediate vicinity of the massive black hole Sagittarius A. *Intriguingly, the shape of the initial mass function (IMF) in this region appears to deviate from the standard Salpeter/Kroupa law. However, our knowledge of the stellar population in this challenging environment remains limited due to extreme extinction and crowding, which pose a steep hurdle to the photometric classification of stars. Spectroscopic data are available only for comparably bright sources. In this talk, we present the results of our latest study, where we employed intermediate band (IB) near-infrared imaging with the aim of enhancing our understanding of the number and distribution of young, massive stars in this region. In agreement with previous studies, but going significantly beyond them, we found a core-like distribution of late-type stars. In contrast, the density of the early-type stars increases steeply towards the black hole. The analysis revealed a top-heavy IMF for young stars within about 0.4 pc of Sagittarius A. A standard IMF may suffice at greater distances, indicating diverse star formation mechanisms at work. Additionally, we demonstrate how intermediate band photometry can serve to determine metallicities, with around 6% of the late-type stars in our sample exhibiting metal-poor characteristics.*

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