

# **Testing the Extents of 1-Dimensional Surface Brightness Profiles Using Simulated Galaxies**

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It is not clear where the boundary lies between a galaxy in the night sky and its surrounding environment. When measuring 1-D radial surface brightness profiles of a galaxy, this cutoff is even harder to determine. Understanding how far galaxies extend into the background is of great significance to observational astronomers. Using simulated images of galaxies, we measure the radial profile of the model galaxy, and compare it to the radial profile of the same galaxy added to an image of the sky. Testing where these two profiles diverge allows us to determine how much of the profile can be trusted as real data. We extend this study to the median profiles of galaxies of similar masses and redshifts, allowing us to pinpoint trust regions for each population of similar galaxies.