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Source Modeling in Large Astronomical Imaging Surveys

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Source modeling is the process of modeling the flux distribution of astronomical objects such as galaxies and stars to enable accurate photometric measurements. However, conventional source modeling pipelines applied on wide imaging surveys often struggle with large, nearby galaxies, which are frequently "shredded" into multiple smaller components. This fragmentation leads to inaccurate flux measurements and misclassification of sources. In this talk, I will discuss this problem and present two methods one can use to improve photometry for such galaxies: (1) aperture photometry, which provides a straightforward way to measure total flux, and (2) scarlet, a novel tool introduced by Melchior et al. 2018, that enables source deblending and non-parametric modeling of sources.

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