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Identification of low-surface brightness galaxies and studying their physical properties in the LSST Era

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In the coming years, deep wide-field surveys such as the Legacy Survey of Space and Time will dramatically expand the known population of low surface brightness galaxies (LSBGs), enabling statistical studies and reducing selection biases. This will allow LSBGs to play a central role in addressing key questions in cosmology and galaxy evolution, including the nature of dark matter halos, the origin of ultra-diffuse galaxies, and the completeness of the low-surface-brightness galaxy population. Our work is divided into two main components: the identification and characterization of LSBGs using transformer-based models trained on Dark Energy Survey data and adapted for application to LSST Data Preview 1 (DP1) images; following identification, we perform photometric analyses to estimate the physical properties of the detected LSBGs. In this talk, I shall provide a broad overview of the topic and the ideas, provide some historical background and describe the methodology that we follow in our work.
[8:40 AM]

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