

## Deciphering the Low Surface Brightness Universe

**KEYWORDS:** Low surface brightness structures; wide-field astronomy; low-mass galaxies; hierarchical galaxies; galaxy clusters; dark matter; stellar streams; galaxy surveys

**SUMMARY:** One of the last remaining frontiers in optical/near-infrared observational astronomy is the realm of low surface brightness (LSB) structures (V-band surface brightness levels  $\mu V > 27$  AB mag/arcsec<sup>2</sup>). These structures, characterized by very low stellar surface densities, have largely eluded detection even by current wide-field surveys. The study of this regime holds the promise of revolutionizing our understanding of various aspects of astrophysics, including the formation of low-mass galaxies, the hierarchical assembly of galaxies and galaxy clusters, and the enigmatic nature of dark matter. This symposium aims to foster collaboration and knowledge exchange between observers, theorists and ML experts from various fields that collectively contribute to the LSB domain.

**SOC:** Fernando Buitrago (UVA, co-chair); Helena Domínguez-Sánchez (CEFCA, co-chair); Mireia Montes Quiles (UVA, co-chair); Jesús Vega Ferrero (UVA, co-chair); Alejandro S. Borlaff (NASA Ames); María Ángeles Gómez Fidalgo (UVA); Javier Román (University of Groningen)

**WEBSITE:** <https://sites.google.com/view/lsb-sea2024/>

**CONTACT:** [mireia.montes.quiles@gmail.com](mailto:mireia.montes.quiles@gmail.com)

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