## LXVI Congresso nazionale della Società Astronomica Italiana



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## L'Universo alle basse brillanze superficiali: risultati e prospettive future

Wednesday 4 June 2025 16:13 (12 minutes)

"The frontier of the new generation of all-sky surveys is to explore the Universe down to the low-surface brightness (LSB) regime, where highly diagnostic relics of the galaxy mass assembly across all environments reside. The primary objective is to map the mass assembly of galaxies in all environments, thereby constraining their formation and evolution within the Lambda-Cold Dark Matter (LCDM) paradigm.

New space telescopes, such as Euclid and JWST, along with the imminent arrival of the wide-field Vera Rubin Telescope and the ESO ELT, are going to radically transform our understanding of the formation and evolution of structures in the universe.

In this talk, I would like to provide a concise overview of:

- the current state-of-the-art in LSB research, including the formation and evolution of intra-cluster light (ICL), the growth of stellar halos in massive galaxies, and the structure and formation of extreme LSB galaxies, such as ultra-diffuse galaxies;

- recent breakthroughs enabled by these cutting-edge facilities;

- outstanding questions and missing information that remain unresolved in this dynamic field.

In this overview, I would like to highlight the key role played by INAF's young scientists involved in the aforementioned research and present some of the groundbreaking results they have achieved over the last years."

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**Session Classification:** La gravità, la materia oscura e le tensioni cosmologiche: il contributo di JWST, Euclid (chair: P. Rosati)