

Recent Results from the SAURON Galaxy Survey

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Abstract

Much world-wide effort is devoted to the study of the formation and evolution of galaxies, ranging from observations of the most distant objects in the early Universe to detailed analysis of the motions of individual stars in the Milky Way, combined with theoretical work and numerical simulations. Integral field spectroscopy makes it possible to measure the motions and physical properties of stellar populations in nearby galaxies, and to determine the properties of the supermassive black holes in their centres. A representative survey of nearby early-type galaxies and spiral bulges with SAURON, a panoramic integral-field spectrograph custom-built for the UK/NL/E 4.2m William Herschel Telescope on La Palma, reveals a fascinating diversity of properties. The stellar and gaseous kinematics and the line-strength distributions provide the intrinsic shape of the galaxies, their orbital structure, the mass-to-light ratio as a function of radius, the frequency and structure of kinematically decoupled cores, the masses of nuclear black holes, and the relation between orbital structure and the age and metallicity of the stellar populations. This 'fossil record' gives key insight into the galaxy formation process. The talk will summarize recent results of the SAURON survey, and briefly discuss the next steps.

Resume

Tim de Zeeuw received his PhD degree from Leiden University. He worked at the Institute for Advanced Study and Caltech before returning to Leiden as professor of astronomy. His research focuses on the formation, structure and dynamics of galaxies. He directed the Netherlands Research School for Astronomy and Leiden Observatory, and served on oversight committees for AURA, ESA, ESO and NASA. He led the recent development of the European Science Vision for Astronomy. He holds honorary doctorates from the Universities of Lyon and Chicago and is currently Director General of ESO.