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# Stellar Populations of Kinematically Decoupled Cores in E/S0 Galaxies†

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**Abstract.**

In this poster contribution, we present results from high spatial resolution integral-field spectroscopy of elliptical (E) and lenticular (S0) galaxies from the SAURON representative survey, obtained with the OASIS and GMOS spectrographs. These seeing-limited observations explore the central $\sim 10'' \times 10''$ (typically one kiloparsec diameter) regions of these galaxies using a spatial sampling four times higher than SAURON ($0\farcs27$ vs. $0\farcs94$ spatial elements), resulting in almost a factor of two improvement in the median PSF. These data allow accurate study of the central regions to complement the large-scale view provided by SAURON. We derive the stellar and gas kinematics, stellar absorption-line strengths and nebular emission-line strengths for our sample, and derive maps of the luminosity-weighted stellar age, metallicity and abundance ratio via stellar population models. From these data we find a wealth of structures either not seen or poorly resolved in the SAURON data, including a number of kinematically-decoupled cores (KDCs) in the centres of some galaxies. We compare the intrinsic size and luminosity-weighted stellar age of all the visible KDCs in the full SAURON sample, and find two types of components: kiloparsec-scale KDCs, which are older than 8 Gyr, and are found in galaxies with little net rotation; and compact KDCs, which have intrinsic diameters of less than a few hundred parsec, show a range of stellar ages from 0.5 - 15 Gyr (with 5/6 younger than 5 Gyr), are found exclusively in fast-rotating galaxies, and are close to counter-rotating around the same axis as their host. Of the 7 galaxies in the SAURON sample with integrated luminosity-weighted ages less than 5 Gyr, 5 show such compact KDCs, suggesting a link between counter-rotation and recent star-formation. We show that this may be partly due to a combination of small sample size at young ages, and an observational bias, since young KDCs are easier to detect than their older and/or co-rotating counterparts.

**Keywords.** galaxies: elliptical and lenticular, cD; evolution; formation; kinematics and dynamics; stellar content; structure

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† Poster available at: www.strw.leidenuniv.nl/∼mcdermid/mcdermid_iau_2006_poster.pdf