Star Formation in Nearby Early-Type Galaxies: Mapping in UV, Optical, and CO

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The `SAURON` integral-field survey reveals that small ($\sim 0.1\,R_{\rm e}$) kinematically decoupled cores (KDCs) in early-type galaxies are increasingly young toward the center and typically found in fast-rotating galaxies, while large KDCs ($\sim 0.5\,R_{\rm e}$) have homogeneously old stars in non-rotating galaxies [1]. *GALEX* UV imaging further allows the direct identification of regions of recent ($\leq$ 0.5 Gyr) star formation (SF). In e.g. NGC 2974, young stars are identified in the center and an outer ring [2]. Nuclear and inner ionised-gas rings [3] then suggest that current SF is bar-driven. The CO detection rate of `SAURON` early-type galaxies is $\approx 40\%$ (Combes et al, in prep.). Synthesis imaging reveals that it is generally contained in a well-ordered central disk, both in galaxies with a (young) central stellar disk (e.g. NGC 4459, 4526) or a (young) KDC (e.g. NGC 3032, 4150) (Young et al, in prep.). CO also traces well the ionised gas and young stellar populations, but not always the stellar kinematics [3,4,5].

References

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