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Title:	The SAMI Galaxy Survey: the link between angular momentum and optical morphology
Authors:	Mahajan, Smriti (/jspui/browse?type=author&value=Mahajan%2C+Smriti)
Keywords:	Galaxies: evolution Galaxies: fundamental parameters Galaxies: kinematics and dynamics
Issue Date:	2016
Publisher:	Oxford University Press
Citation:	Monthly Notices of the Royal Astronomical Society, 463(1), pp. 170–184
Abstract:	We investigate the relationship between stellar and gas specific angular momentum j , stellar mass M^* and optical morphology for a sample of 488 galaxies extracted from the Sydney-AAO Multi-object Integral field Galaxy Survey. We find that j , measured within one effective radius, monotonically increases with M^* and that, for $M^* > 109.5 M_\odot$, the scatter in this relation strongly correlates with optical morphology (i.e. visual classification and Sérsic index). These findings confirm that massive galaxies of all types lie on a plane relating mass, angular momentum and stellar-light distribution, and suggest that the large-scale morphology of a galaxy is regulated by its mass and dynamical state. We show that the significant scatter in the M^* - j relation is accounted for by the fact that, at fixed stellar mass, the contribution of ordered motions to the dynamical support of galaxies varies by at least a factor of 3. Indeed, the stellar spin parameter (quantified via λR) correlates strongly with Sérsic and concentration indices. This correlation is particularly strong once slow rotators are removed from the sample, showing that late-type galaxies and early-type fast rotators form a continuous class of objects in terms of their kinematic properties.
Description:	Only IISERM authors are available in the record.
URI:	https://academic.oup.com/mnras/article/463/1/170/2589404 (https://academic.oup.com/mnras/article/463/1/170/2589404) http://hdl.handle.net/123456789/2575 (http://hdl.handle.net/123456789/2575)
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