Structure and dynamics of the central regions of disk galaxies

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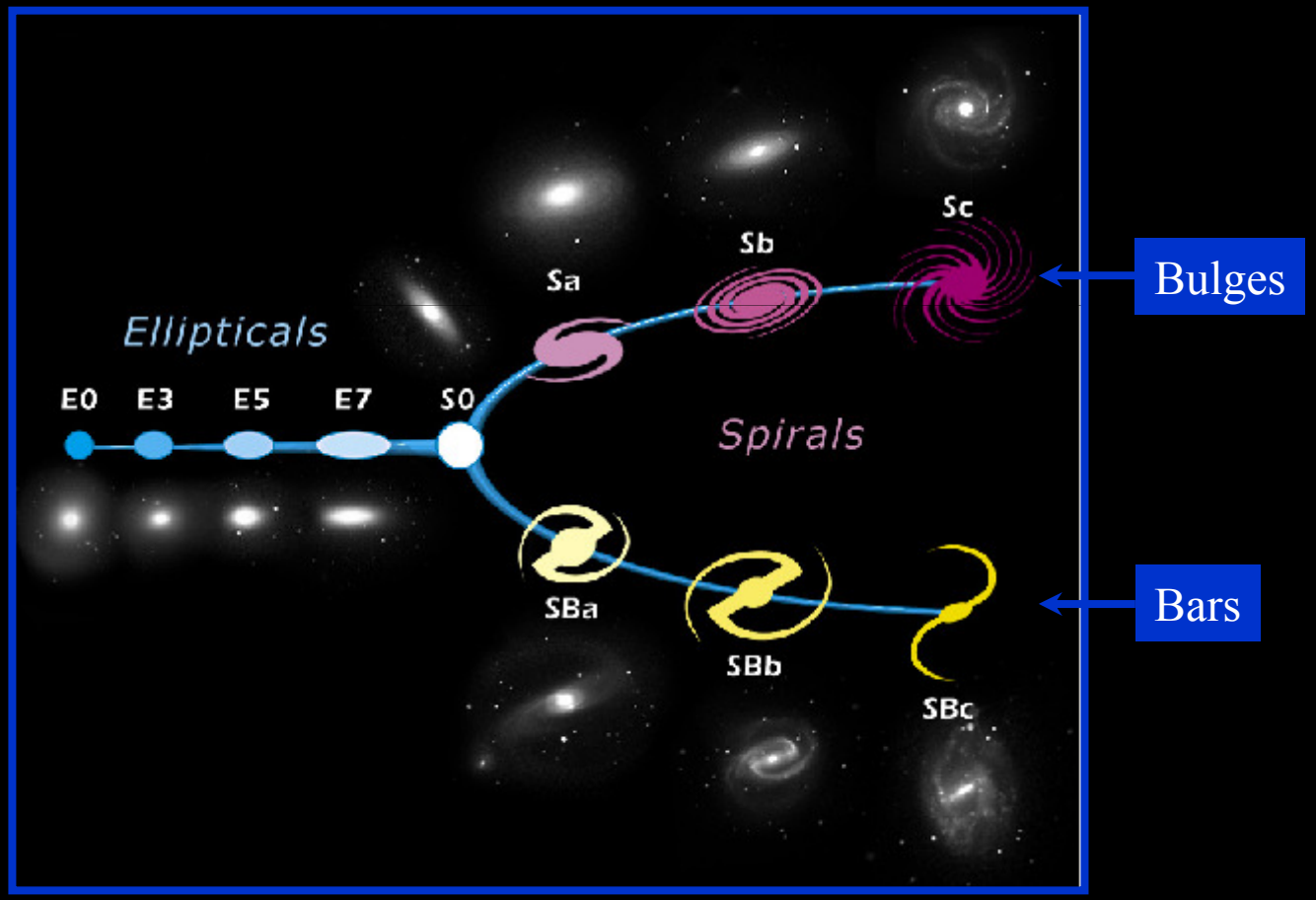
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Thesis work conducted at

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Introduction

- *What do we mean by "**central regions**" of disk galaxies?*



Introduction

Eggen et al. 1962
Sandage 1990
Gilmore & Wyse 1998

Kauffmann 1996
Baugh et al. 1996
Cole et al. 2000



Classical Bulges

PROTOGALACTIC COLLAPSE

internal versus external

GALAXY MERGERS, RAM-PRESSUE STRIPPING OF GAS



Disk-like Bulges

fast versus slow

star formation,
gas recycling,
metal enrichment,
energy feedback via supernovae,
etc.

fast versus slow

Aguerri et al. 2001
Fu et al. 2003
Eliche-Moral et al. 2006

Athanassoula 1992
Heller & Shlosman 1994
Shen & Sellwood 2004



Boxy/Peanut Bulges

INTERNAL
SECULAR EVOLUTION
driven by bar instabilities,
by dark matter halos,
by bars and oval distortions,
by spiral structure,
by n
by g
etc.

internal versus external

ENVIRONMENTAL
SECULAR EVOLUTION
driven by prolonged gas infall,
by minor mergers,
by galaxy harassment,
etc.

Raha et al. 1991
Debattista et al. 2004
Martínez-Valpuesta et al. 2006

- Bars:

1. Drive gas efficiently from the outer disk to the inner regions of galaxies, depleting it of angular momentum (Weinberg 1985, Debattista & Sellwood 2000, Athanassoula 2003)



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