Gas-rich minor mergers and S0 galaxies

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Abstract

A significant percentage (~20%) of S0 galaxies show hints of rejuvenation, such as prominent outer rings in ultraviolet imaging. Their origin is still debated, and might be connected with secular evolution (e.g., bar instability) or and with environmental effects (e.g., gas refuelling or minor mergers). I discuss the results of recent Nbody/SPH simulations of minor mergers involving a S0 galaxy and a gas-rich dwarf galaxy. I show that minor mergers can drive the formation of inner and outer star-forming rings in S0 galaxies.

KEY RESULTS:

1) In all our simulations, the interaction induces the formation of a stellar BAR in the target galaxy (in the first Gyr after the first pericentre passage). The same model target galaxy evolved in isolation is stable against bar formation (Fig. 3).

2) In most simulations the gas stripped from the intruder ends up into a RING, whose radius and strength are connected with RESONANCES induced by the barred potential (Fig. 3 and Mapelli et al. 2012a, 2012b).

References: