Nuclear rings in simulated barred galaxies

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Dust lanes, nuclear rings and nuclear spirals are typical structures in the inner region of barred galaxies. Their shapes and properties are linked to the physical parameters of galaxies. To study galaxy formation and evolution revealed by these gas features, we need to understand what conditions are responsible to the gas flow patterns. Here we use highresolution hydrodynamical simulations to study 2D gas flows in simple barred models. We find that the location and thickness of nuclear rings are correlated with galactic properties, such as the pattern speed and central mass concentration, within certain ranges, while the formation of nuclear rings may be directly related to the angular momentum loss. Our result may have important implications for measuring the parameters of real barred galaxies which will be observed by IFU.