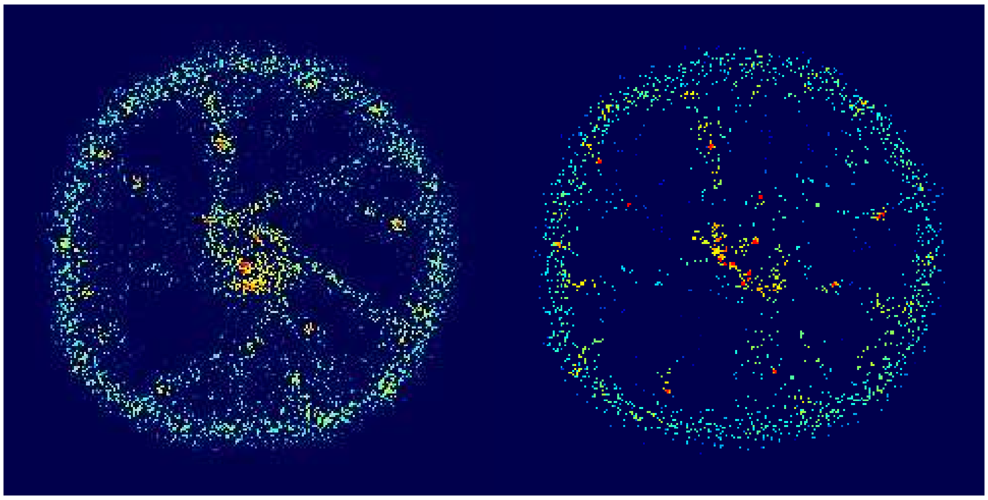

Figure 1: Results of two simulations of a collisional ring galaxy using identical initial conditions, with a different form of artificial viscosity in the SPH algorithm. The left panel shows prominent spoke features (cf. the Cartwheel ring galaxy) using a bulk viscosity. The right panel shows the results when a 'molecular' viscosity (a discretization of the von Neumann-Richtmyer viscosity) is used. In both cases the parameterization constants for these artificial viscosities were set using one-dimensional shock tube tests.

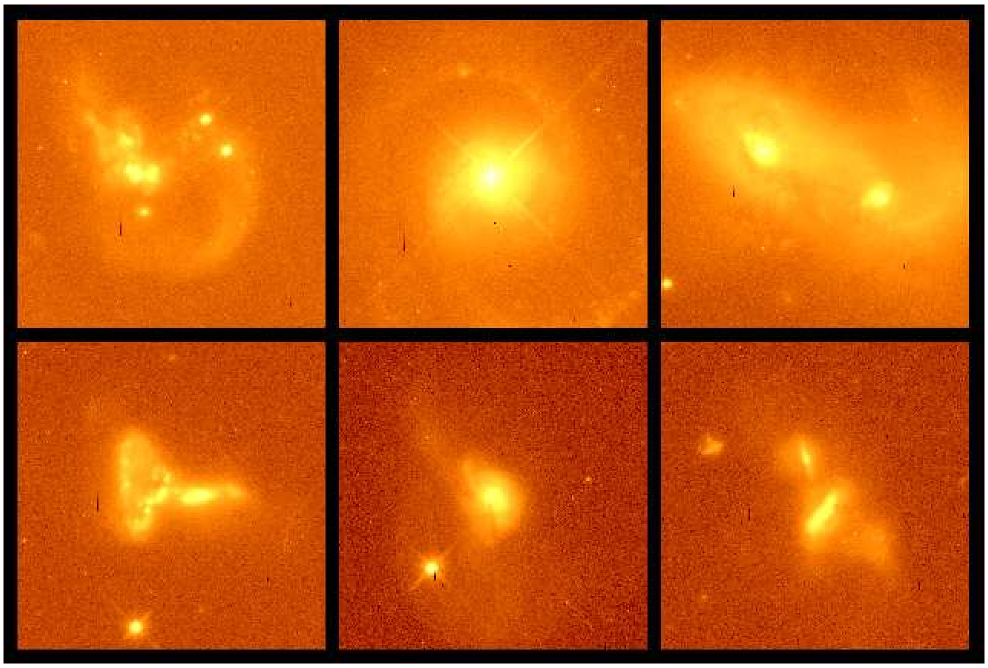

Figure 2: **Upper Left** – In nearly all ULIRGs, massive star formation is seen on all scales, including super star clusters of the type seen in HST images of other colliding galaxies, indicating that a giant starburst is the dominant power source in most ULIRGs. **Upper Middle** – A star–like nucleus is seen in 10% of the ULIRGs, for which the dominant power source may be a dust–enshrouded AGN/QSO. **Upper Right** – Several of the galaxies show clear evidence for a ring around the central nucleus, very similar to rings seen in HST images around the centers of other "black hole"–powered galaxies (e.g., NGC 4261). **Bottom Left** – There is evidence for at least one classical collisional ring galaxy in the sample, similar to the Cartwheel ring galaxy imaged by the HST. **Bottom Middle** – Some ULIRGs previously classified as non-interacting from ground-based images now show clear evidence of merging (a second nucleus) or of interaction (e.g., tidal tails). **Bottom Right** – Many ULIRGs appear to have physically associated companion galaxies, which may be related to the collision, merger, and subsequent burst of star formation.