From clump to disk scales in high-mass star formation regions

- Joseph Mottram

High-mass star formation regions are often complex. The balance between feedback and collapse of material, on a range of scales, sets the fate of the multiple fragments typically seen in such regions. Furthermore, the degree to which environment matters is one of the primary differences between the two most successful modern theories of star formation: competitive accretion and isolated turbulent cores. Within this context I will present results from a sample of high-mass star formation regions observed with multiple NOEMA configurations and the IRAM 30m at 1.3mm as part of the large program CORE. These data, which have a spatial resolution of $\sim 0.4''$ and recover spacial scales up to $\sim 20''$ thanks to merging of the interferometric and single-dish data, are revealing the temperature and kinematics of these regions, some of which host objects in a range of evolutionary stages, from cold starless cores to an UCHII region. The gas dynamics show that in at least some cases the fate of the various sources are linked to the properties and motions observed in the larger-scale reservoir.

Cores and embedded objects