

As it is well known, flow-invariant subspaces favour the existence of robust heteroclinic cycles and networks. One of the novelties introduced by the theory of coupled cell systems is the existence of synchrony subspaces, subspaces defined by equalities of some cell coordinates that are flow-invariant by all coupled cell systems associated with the given network structure and that are independent of the specific dynamics at the cells. There is a vast work on heteroclinic cycles and networks in symmetric systems, induced by the lattice of fixed point subspaces. The study of heteroclinic cycles and networks in coupled cell systems, induced by the lattice of synchrony subspaces, is new and of current interest. I will start by showing how flow-invariant subspaces in coupled cell systems can support robust heteroclinic attractors, assuming asymmetric inputs and no global or local symmetries in the network (joint work with Peter Ashwin (Exeter, UK), Ana Dias (Porto, Portugal) and Mike Field (Houston, USA)). Next I will focus on how to combine, through binary network operations, such as the join and the product, small networks whose dynamics supports robust heteroclinic cycles to build larger networks with dynamics supporting robust heteroclinic networks (joint work with Ana Dias (Porto, Portugal)).