Clustering with phylogenetic tools in astrophysics

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Phylogenetic approaches are finding more and more applications outside the field of biology. Astrophysics is no exception since an overwhelming amount of multivariate data has appeared in the last twenty years or so. In particular, the diversification of galaxies throughout the evolution of the Universe quite naturally invokes phylogenetic approaches. We have demonstrated that Maximum Parsimony brings useful astrophysical results, and we now proceed toward the analyses of large datasets for galaxies. In this talk I present how we solve the major difficulties for this goal: the choice of the parameters, their discretization, and the analysis of a high number of objects with an unsupervised NP-hard classification technique like cladistics.

Keywords: multivariate classification; cladistics; Maximum Parsimony; galaxies.