

INDAM MEETING:
**HYPERBOLIC DYNAMICAL SYSTEMS
IN THE SCIENCES**

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Distance-based methods for phylogenetic reconstruction and applications in linguistics and biology

Phylogenetic reconstruction belongs to a general class of inverse problems whose relevance is now well established in many different disciplines ranging from biology to linguistics and social sciences. In the simplest case of phylogeny reconstruction, one seeks the tree-like structure that better describes the evolutionary relationship between the given set of taxa. We will introduce the general concept of phylogenetic reconstruction, with a focus on distance-based reconstruction methods, i.e., methods whose starting point is a distance matrix between taxa. In this framework, we will introduce a new reconstruction scheme and we finally give an overview of interesting applications of phylogenetic reconstruction.