

Proposition de stage
Tractable Phylogeny Problems

Manuel Bodirsky
LIX, École Polytechnique

Titre : Tractable Phylogeny Problems

Thématique : Algorithmique/complexité

Laboratoire : LIX, École Polytechnique

Ville : Palaiseau, France

Équipe/projet : Algorithmique et optimisation

Directeur du stage : Manuel Bodirsky (bodirsky@lix.polytechnique.fr)

Directeur du laboratoire : Philippe Baptiste (baptiste@lix.polytechnique.fr)

Présentation générale : In phylogenetic reconstruction, we often have large collections of *partial information* about a tree (for example, the tree of species that evolved in evolution, or the tree of languages etc), and we would like to know whether there exists a single tree that *explains* the data in the sense that it is consistent with all the given partial information. The *rooted triple consistency problem*, the *quartet consistency problem*, and the *subtree avoidance problem* are important examples of constraint satisfaction problems in phylogenetic reconstruction. We want to systematically study the computational complexity of such problems.

Objectifs du stage : Apply the universal-algebraic approach to study the computational complexity of phylogeny problems.

Compétences espérées : Candidates for this project should have a strong background in logic and theoretical computer science.