Hard meta problems at the core of the infinite-domain CSP dichotomy conjecture

Jakub Rydval
Technische Universität Wien

The infinite-domain CSP dichotomy conjecture extends the finite-domain CSP dichotomy theorem to reducts of finitely bounded homogeneous structures. By Fraïssé's Theorem, finitely bounded homogeneous structures are in a one-to-one correspondence to universal first-order sentences whose finite models form a class with the amalgamation property.

In this talk, I motivate a complexity-theoretic view on the classification problem for finitely bounded homogeneous structures. Subsequently, I provide new lower bounds for the complexity of this problem under two different specifications of the input. Finally, I show that the closely related problem of testing homogenizability for classes of YES-instances of Datalog programs is undecidable already for binary signatures.