

Instantiation-based reasoning, EPR encodings and all that

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Instantiation-based reasoning aims to combine the expressivity of first-order logic with the efficiency of propositional and SMT reasoning. Most instantiation-based methods are complete for first-order logic and are especially efficient for the effectively propositional fragment (EPR). It turns out that many problems such as model checking, bit-vector reasoning, finite model finding and QBF solving can be succinctly encoded into the EPR fragment. In this talk I will discuss recent developments in instantiation-based reasoning, EPR based encodings and related challenges.