1046-05-340 **Stephan Kreutzer*** (stephan.kreutzer@comlab.ox.ac.uk), Oxford University Computing Laboratory, University of Oxford, Wolfson Building, Parks Road, Oxford, OX1 3QD, England.

Algorithmic Meta-Theorems.

Algorithmic meta-theorems are general algorithmic results applying to a whole range of problems, rather than just to a single problem alone. They often have a *logical* and a *structural* component, that is they are results of the form: *"every computational problem that can be formalised in a given logic $\mathcal{L}$ can be solved efficiently on every class $\mathcal{C}$ of structures satisfying certain conditions."*

Beginning with Courcelle's result that every property of graphs definable in monadic second-order logic can be decided in linear time on any class of structures of bounded tree-width, algorithmic meta-theorems have been established for a range of logics and graph classes. In particular, graph classes defined by concepts originating in graph minor theory have received significant attention.

With their logical and combinatorial, graph theoretical component, algorithmic meta-theorems establish a link between combinatorics or algorithms theory and computational logic.

In this talk I will survey recent results in this area and present challenges for current and future research, especially in establishing intractability results for natural graph classes and logics. (Received August 27, 2008)