

**Peter Cholak**

*Ramsey Theory and Reverse Mathematics*

We study the proof-theoretic strength of Ramsey's theorem. We show, for example, that every first-order consequence of Ramsey's theorem for pairs with two colors is also a first-order consequence of Peano Arithmetic with the induction scheme restricted to  $\Sigma_2^0$ -formulas. Our results follows from adapting recursion-theoretic arguments to produce a notion of forcing for models of second-order arithmetic. We will close by surveying some of the open questions in this area.

(This work is joint with Carl G. Jockusch and Theodore A. Slaman.)