

Meeting: 1001, Evanston, Illinois, SS 8A, Special Session on Computability Theory and Applications

1001-03-69 **W. Calvert, S. S. Goncharov, J. F. Knight*** (knight.1@nd.edu), **O. Kudinov, A. S. Morozov** and **V. Puzarenko**. *Computable structures of high rank*. Preliminary report.

Scott's Isomorphism Theorem says that for a countable structure \mathcal{A} (in a countable language), there is an $L_{\omega_1, \omega}$ sentence (a *Scott sentence*), whose countable models are exactly the isomorphic copies of \mathcal{A} . The proof assigns a countable ordinal, the *Scott rank*, to \mathcal{A} . For a computable structure, the Scott rank is at most $\omega_1^{CK} + 1$. There are well-known examples of computable structures representing various computable ranks, and rank $\omega_1^{CK} + 1$. There are also computable structures of rank ω_1^{CK} . I will state several problems on computable structures of non-computable rank, and give partial results on these problems. (Received August 06, 2004)