1064-03-61 **Barbara F. Csima**, **Johanna N.Y Franklin** and **Richard A. Shore***
(shore@math.cornell.edu), Department of Mathematics, Malott Hall, Cornell UInversity, Ithaca, NY 14853. *Degrees of Categoricity.* Preliminary report.

Fokina, Kalimullin and Miller (Degrees of Categoricity of Computable Structures) defined the degree of categoricity of a recursive structure $\mathcal{A}$ to be the least degree $\mathbf{d}$ (if there is one) such that for every recursive structure $\mathcal{B}$ isomorphic to $\mathcal{A}$ there is an isomorphism recursive in $\mathbf{d}$. We strengthen their results and answer a number of their questions as follows:

Theorem: *Every degree which is d-r.e. in and above* $0^{(\alpha)}$ *for any recursive ordinal* α *is the degree of categoricity of some recursive structure.*

Theorem: *Every degree of categoricity is hyperarithmetic.*

A simple calculation shows that the index set of the e such that the eth recursive structure has a degree of categoricity is Σ^1_2. As an application of our results and the methods used to prove them, we show that this index set is actually Π^1_1 complete. (Received August 25, 2010)