1042-03-227 **Christina M Maher*** (cmaher@nd.edu), 8800 Mayflower Hill, Waterville, ME 04901-8888.

Generalizing the Pullback Theorem. Preliminary report.

A very useful tool for characterizing what classes of structures Turing computably embed into a given class or for showing that one class K does not Turing computably embed into another class K' is the Pull-back Theorem, which was proved by Knight, Miller, and Vandenboom using forcing. The Pull-back Theorem states that if $K \leq_{tc} K'$ via $\Phi = \phi_e$, then for any computable infinitary sentence ϕ in the language of K', we can find a computable infinitary sentence ϕ^* in the language of K such that for all $\mathcal{A} \in K$, $\Phi(\mathcal{A}) \models \phi$ iff $\mathcal{A} \models \phi^*$. Moreover, if ϕ is computable Σ_α or computable Π_α for $\alpha \geq 1$, then so is ϕ^*. I will discuss my work on generalizing the Pull-back theorem, in particular for Δ^0_2 transformations from K to K'. (Received August 19, 2008)