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Using a RANS model to Perform LES of Isotropic Decaying Turbulence BLAIR PEROT, JAYSON GADEBUSCH, University of Massachusetts, Amherst — The performance of a slightly modified k/ε model is demonstrated on the problem of isotropic decaying turbulence on mesh sizes ranging from 1^3 to 64^3. The model automatically performs RANS, URANS, VLES or LES depending on the mesh resolution. The transition in model behavior is natural and very smooth. No *ad hoc* functions or blending parameters are used to obtain the change in model type from RANS to LES. Perhaps most importantly, the mesh size does not appear in this model even in the LES limit. Moreover, it is demonstrated that the model asymptotically obtains the same balance between resolved and unresolved kinetic energy for a particular mesh size irrespective of the initial conditions. The implications for Unified RANS/LES modeling are discussed. *Supported by AFOSR Grant FA9550-04-1-0023 managed by Lt Col Rhett Jefferies.

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