1145-VV-1922 **John Baez**, **David Weisbart** and **Adam Yassine*** (ayass002@ucr.edu), University of California, Riverside, 900 University Ave., Riverside, CA 92521. *A Category Theoretic Framework for Classical Mechanics.*

The heuristic principles that physicists employ in constructing certain classical systems from subsystems are grounded in a category theoretic framework. We construct such a framework for both the Lagrangian and Hamiltonian settings. In each setting, the composition of morphisms corresponds to the construction of larger systems from smaller subsystems. A symmetric monoidal functor between the two categories translates between the Lagrangian and Hamiltonian perspectives. (Received September 24, 2018)