A desktop-computer simulation for exploring the fission barrier
CAMERON REED, Alma College — A simple model of a fissioning nucleus that splits symmetrically both axially and equatorially is used to show how one can predict the presence of a fission barrier of several tens of MeV for nuclides of mass number $A \sim 90$ and of $\sim 10$ MeV for heavy elements such as uranium. Despite its simplicity, the model reproduces the general behavior of the run of fission barrier height as a function of nuclear mass number as revealed by much more sophisticated models. It intuitive appeal and tractability make it suitable for presentation in a sophomore-level Modern Physics class.