Ultracold Neutron Nonimaging Optics KEVIN P. HICKERSON, Caltech — The design principles of nonimaging optics are applied to ultracold neutron (UCN) transport. In particular, a vertical compound parabolic concentrator (CPC) that efficiently redirects UCN vertically into a bounded spatial volume where they have a maximum energy \( mga \) that depends only on the initial phase space cross sectional area \( \pi a^2 \) creates a spectrometer which can be applied to neutron lifetime experiments, gravitational quantum state experiments and \( \bar{n}n \) oscillation searches.