Buoyant vortex rings and knots with thin core CHING CHANG, STEFAN LLEWELLYN SMITH, University of California San Diego — One challenge of studying the motion of vortex filaments arises from the singular nature of the Biot-Savart integral. We employ the momentum balance investigated by Moore and Saffman for thin-core vortex filaments to obtain the self-induced velocity of filaments, rings and knots. A key feature of the approach is the possibility of incorporating buoyancy forces. The numerical scheme used is discussed and compared to previous analytical and numerical results in the literature. The effect of geometry and buoyancy on the motion of such vortices is examined.