Over the past few years we have been working on the development of a range of innovative techniques for application to Inertial Confinement Fusion. In particular, we have considered the use of burn-through barriers within hohlraums to enable drive independent profiling of the X-ray radiation flux onto a fuel capsule [1], and the use of intermediate-Z hohlraum liners to control M-band preheat [2]. These approaches have been developed using 1 and 2-D radiation hydrodynamics simulations and a 3-D view factor code. This work will be described in addition to some interesting results concerning fast ignition of an imploded fuel mass using X-ray radiation, which brought to light interesting new physics concerning the minimization of ignition energy with an X-ray drive due to its deposition profile in the compressed fuel [3].

References