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Exploiting Resistive Guiding for Fast Ignition ALEX ROBINSON, STFC Rutherford-Appleton Lab — Devising methods and schemes for controlling fast electron transport remains a major challenge in Fast Ignition research. Realistic estimates of the fast electron divergence angle require this control in order to ensure that the fast electron to hot spot coupling efficiency does not reach excessively low values. Resistivity gradients in the target will lead to strong magnetic field growth (via $\nabla\eta \times \mathbf{j}$) which can be exploited for the purposes of controlling the fast electron propagation (Robinson and Sherlock, PoP (2007)). There are a number of possible schemes which might be considered. Here we will report on numerical simulations that we have carried out on both simple configurations such as parabolic reflectors, and complex arrangements (Robinson, Key and Tabak, PRL (2012)). Substantial improvements to the fast electron to hot spot coupling efficiency have been found even for realistic fast electron divergence angles.

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