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Ponderomotive versus Thermal Filamentation in High Z Targets ROBERT BINGHAM, RAOUL TRINES, PETER NORREYS, STFC/RAL, LUIS SILVA, GoLP, ALAN CAIRNS, University of St Andrews — The filamentation instability of lasers in high Z plasmas is investigated. The wavelength dependence of the two principal filamentation mechanisms, namely the ponderomotive force and Joule heating, are examined and deductions made of their relative importance for current holhraum experiments. It is found that the Joule heating mechanism is comparable for short wavelengths and high Z materials while the ponderomotive force becomes more important for longer wavelengths and low Z materials. The effect of plasma density and laser bandwidth is also examined and reported on.

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