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Radiation Pressure Acceleration of Ions A.P.L. ROBINSON, Plasma Physics Group, Central Laser Facility, STFC Rutherford-Appleton Lab, Oxfordshire, OX11 0QX UK — The possibility of accelerating ions by ultraintense lasers in a regime where the radiation pressure of the laser pulse dominates the interaction has received considerable interest in recent years. Simple analytical models show that this regime of acceleration should be highly tunable and permit scaling to hundreds of MeV for laser intensities in excess of 10^{21} Wcm^{-2}. The use of circularly polarized laser pulses has been very important in these theoretical studies. In this presentation we will describe a simple analytical model for RPA and compare this to numerical simulations. The outstanding question of transverse instabilities will also be discussed, as well as the possibility of the RPA mechanism occurring in underdense plasmas.

Alex Robinson
STFC Rutherford-Appleton Lab

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