

ION BUBBLE ASSISTED LASER WAKEFIELD ACCELERATION OF ELECTRONS IN A PREFORMED NON UNIFORM PLASMA CHANNEL

Magesh Koodathingal¹⁾, Vipin Tripathi¹⁾

¹⁾ *Indian Institute of Technology Delhi, New Delhi, India*

E-mail mageshkumar2006@gmail.com

A model of bubble regime electron acceleration by an intense laser pulse in non uniform plasma channel is developed. The plasma electrons at the front of the pulse and slightly off the laser axis in the plasma channel, experience axial and radial ponderomotive and space charge forces, creating an electron evacuated non uniform ion bubble. The expelled electrons travel along the surface of the bubble and reach the stagnation point, forming an electron sphere of radius r_e . The electrons of this sphere are pulled into the ion bubble and are accelerated to high energies.