

## **ANALYSIS ON EFFECTS OF DIFFERENT PERMITTIVITY ON ELECTRIC FIELD AT METAL STUD OF 3MeV DC ACCELERATOR**

**VANDANA PANDEY<sup>1</sup>, S. DEWANGAN<sup>2</sup>, D. K SHARMA<sup>3</sup> & JAISHREE MUNDKAR<sup>4</sup>**

<sup>1</sup>Research Scholar, A. C. Patil College of Engineering Kharghar, Mumbai University, Navi Mumbai, Maharashtra, India

<sup>2,3</sup>Bhabha Atomic Research Centre (B.A.R.C)/APPD, Mumbai, Maharashtra, India

<sup>4</sup>A. C. Patil College of Engineering Kharghar, Navi Mumbai, Maharashtra, India

### **ABSTRACT**

In view of increasing demand of electron-beam treatment for value-addition of industrial products, BARC is setting up a 3MeV, 30kW DC accelerator at Electron Beam Center, Khargharin Navi Mumbai. High-voltage source for this accelerator is a parallel-fed multiplier. A resistive voltage divider is used to measure 3MV accelerating potential in this accelerator. This paper presents comparison forelectric field at metal stud of 3MeV DC accelerator with different permittivities. An electric field simulation was carried out on the resistor metal shield using Maxwell 2-D software. The results of comparison of electric field distribution with different permittivities are described in this paper briefly.

**KEYWORDS:** Maxwell 2D Software, L-Clamp Simulation, Resistive Voltage Divider