

# **PLASMA ANTENNAS**

**ABOLI MORONEY & MONAL MEHTA**

D. J. Sanghvi College of Engineering, Mumbai, Maharashtra, India

## **ABSTRACT**

Plasma antennas refer to a wide variety of antenna concepts that incorporate some use of an ionized medium. This study summarizes the essential theory behind the operation of plasma antennas based on a survey of patents and technical publications. Plasma Antenna is a new captivating concept which could very well be the future of high-frequency, high-speed wireless communications. Using Plasma antennas, it is possible to transmit focused radio waves that would quickly dissipate using the conventional antennas. A plasma antenna is a type of radio antenna currently in development in which plasma is used, replacing the metal elements of a traditional antenna. Plasma antennas can be used for both transmission and reception. Although plasma antennas have solely been implemented in recent years, the concept is not new. A patent for an antenna using the idea was granted to J Hettinger in 1919.

**KEYWORDS:** Plasma, Wi-Fi, Beam-Focusing, Silicon Chip, Electron Cloud, Emitting Element, Passive State, Conductivity, Antenna Detectability, Metal Reflector, Cylindrical Monopole, Maxwell Curl Equations, Boltzmann Equation, Electron Distribution Function (EDF)