Abstract:

Terahertz (T-ray) sources are considered to be next generation light sources for several applications, for example: cancer diagnosis, material science, and so on. For these applications, high power light sources in MegaWatt (MW) intensity level are required. We present the results on generating sub-terahertz radiation by using the dc to ac radiation converter (DARC). DARC can generate high power radiation in THz region and its frequency is controllable by changing the plasma density. A relativistic ionization front which is created by the laser filament of loose focus of Ti:sapphire laser pass through a capacitor array of period d=0.5 cm with a gas pressure between 1 and 200 Pa. The maximum frequency of the generated emission is determined to be in the range of 0.1 to 0.3 THz by several diodes.