

8th International Conference and Exhibition on

LASERS, OPTICS & PHOTONICS

November 15-17, 2017 | Las Vegas, USA

Influence of laser energy on the electron temperature of a laser-induced Mg plasma

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The magnesium plasma induced by a 1064 nm Q-switched Nd: YAG laser in atmospheric air was investigated. The evolution of the plasma was studied by acquiring spectral images at different laser energies and delay times. We observed that the intensities of the spectral lines decrease with larger delay times. The electron temperature was determined using the Boltzmann plot method. At a delay time of 100 ns and laser energy of 350 mJ, the electron temperature attained their highest value at 10164 K and then decreases slowly up to 8833.6 K at 500 ns. We found that the electron temperature of the magnesium plasma increases rapidly with increasing laser energy.

Biography

Emmanuel Asamoah is pursuing his Master's degree in Optical Engineering at Jiangsu University. He has currently published two papers in reputed journals and working diligently to publish more before he graduate. He is the Head of the International Students Union in his department.

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