

REPETITIVE EMISSION OF TRAVELING FIREBALLS IN MICROWAVE RESONATOR

V. Dikhtyar and E. Jerby*
Faculty of Engineering, Tel Aviv University
Ramat Aviv 69978, Israel

Observations of fireballs emitted periodically from a germanium bulk in a microwave cavity, and traveling along the cavity toward the magnetron, are reported. The effect is associated with a hot spot evolved on the germanium surface. The luminous fireball is created by the hot spot, and then flies away about ~20 cm to the magnetron, and disappears. Immediately after, the next fireball is generated, travels, and disappears. The fireball lifetime cycle is 1-2 sec, repeating periodically tens times. The paper describes this phenomenon in view of Refs. [1, 2], and discusses its practical significance.

REFERENCES

1. P. L. Kapitza, Dokl. Acad. Nauk USSR, vol.101, pp. 245-248, 1955.
2. Y. H. Ohtsuki, H. Ofuruton, "Plasma fireballs formed by microwave interference in air," Nature, vol. 350, pp. 139-141, 1991.

Correspondence: jerby@eng.tau.ac.il