Abstract Submitted
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Multi-megawatt terahertz emission of a magnetized plasma with strong density gradients under the injection of a kiloampere REB[1] ANDREY ARZHANNIKOV, VLADIMIR ANNENKOV, IVAN IVANOV, PETR KALININ, ALEXANDR KASATOV, SERGEY KUZNETSOV, KONSTANTIN KUKLIN, MAXIM MAKAROV, KONSTANTIN MEKLER, SERGEY POPOV, ANDREY ROVENSKIKH, DENIS SAMTSOV, EVGENY SANDALOV, STANISLAV SINITSKY, VASILY STEPANOV, IGOR TIMOFEEV, VLADIMIR GLINSKIY, Budker Institute of Nuclear Physics, ATIC NSU TEAM, GOL PET TEAM — Injection of a relativistic electron beam (0.8 MeV, 10 kA, 5 s) into a magnetized plasma column has been actively studied last years at the GOL-PET facility as a method for generating high-power tunable terahertz radiation. Recent experiments [1] have shown that the power of radiation flux along the plasma column at the fundamental plasma frequency harmonic achieves 4 MW in case of strong radial plasma density gradients. We report that creating a low density plasma gap between the plasma column end and a graphite collector for the E-beam allows us to reach the power level of 10 MW in the radiation flux. Theoretical ideas about mechanisms of enhanced THz generation in the beam-plasma system will be also presented. The work was supported in part by the Russian Science Foundation (project no.19-12-00250). [1] Arzhannikov A Vet al. *Plasma Physics and Controlled Fusion* **62,** 045002 (2020)

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