Photonic Band Gap Accelerating Structures Progress Report

4Q FY15

DOE office of the High Energy Physics funded Los Alamos National Laboratory to conduct a project on simulation, fabrication, and testing of photonic band gap (PBG) structure resonators for accelerator applications. The proposed scope of work includes design of the PBG resonators with improved wakefield suppression and lower peak surface magnetic field as compared to already tested resonators with regular array of round metal rods. The resonators would consequently be fabricated and tested.

The funding was received at Los Alamos in the middle of September, 2015. The charge code was established. The PI (Evgenya Simakov) started on running simulations of PBG resonators with CST Microwave Studio and CST Particle Studio. The PI also communicated with the Argonne Wakefield Accelerator (AWA) and Argonne National Laboratory (ANL) about conducting more experiments to accurately measure wakefields in PBG structures. The PI prepared a job ad and placed it with the LANL's booth at American Physical Society Division of Plasma Physics annual meeting to find a postdoctoral associate for the project.