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Josephson generation of coherent THz stimulated emission on Planar Multilayer Superconducting Lattice (PMSL)

The transmission fluxon waves and plasmon waves are considered on Planar Multilayer Superconducting Lattice (PMSL). These nonlinear solitary waves are presented in the form of pulses that can propagate without change of form and without the loss or acquisition of energy. The wave-resistant, that can store information, also moving in the right direction that leads to the interaction with electronic devices. Such waves can be transformed into a single pulse-fluxons. One unit of fluxons can be is transformed in other form of signal which is required for the electronic systems. In addition, the movement and vibrations of fluxons in Josephson junctions is accompanied by stimulated emission in the range up to 10 THz. This effect allows to use of PMSL in the generators and detectors for the wide of electromagnetic spectrum. The signal applied to the film transformed in the voltage, the amplitude of which is dependent from the layer number. So that PMSL is expected to use in applications such as proximity switches, current limiters, microlasers Infrared (IR) of range and also antenna with scanning beam, where the gap of superconducting film is synthesized with low impedance.

Author: Dr GRISHIN, Valery (ANU)

Co-author: Dr MURAVEY, Leonid (RSTU)

Presenters: Dr MURAVEY, Leonid (RSTU); Dr GRISHIN, Valery (ANU)

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