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Title:Terahertz radiation emission mechanism from ferromagnetic metal films excited by femtosecond laser pulses

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Abstract:A coherent terahertz needle radiation emission mechanism is proposed. This mechanism can be realised in the experiments on femtosecond laser pulses interacting with surface of nanostructured ferromagnetic metal film. The proposed mechanism is based on exciting of coupled coherent phonon-magnon modes on a nanostructured metal surface by laser femtosecond pulse. The value of the Poynting vector for the terahertz radiation is estimated.

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