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The unified approach to motion of quasi-particles in crystal lattice and parametric resonance IRINA BARIAKHTAR, Boston College, VICTOR BARYAKHTAR, Academy of Sciences of Ukraine, Institute of Magnetism, ALEXANDER NAZARENKO, Verisign — The mathematical identity of the description of the motion of an electron in the periodic field of a crystal lattice and the motion of an oscillator with periodically changing eigen frequency due to the external field is demonstrated. The band approach, well suited for description of quasi-particles in a crystal, is applied to description of parametric resonance. This gives the possibility to calculate the properties of increments of parametric oscillations close to the band edges. The increment of parametric oscillation is calculated in two approximations: the weak and strong external limits.

Irina Bariakhtar
Boston College

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