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**Photo-induced ferromagnetism in dilute magnetic semiconductors through Bogoliubov-Valatin transformation** SUBODHA MISHRA, SASHI SATPATHY, Department of Physics and Astronomy, University of Missouri-Columbia, Columbia, MO 65211, GOURI S. TRIPATHI, Department of Physics, Berhampur University, Orissa, India — The dilute magnetic semiconductor is an emerging area of interest because of their possible applications in spintronics. One can control ferromagnetism in these materials by shining light on the sample. The incident light creates extra carriers (electrons and holes) across the band gap, thereby enhancing the carrier-mediated ferromagnetism between the localized Mn moments. The effect is studied by a model Hamiltonian that includes the kinetic energy and Columb interaction terms and the coupling of carriers to light. The Hamiltonian is solved by B-V transformation and then minimizing the ground-state energy by a variational method. We study how the critical temperature varies with light frequency and coupling of light to the carrieres.

Subodha Mishra  
Department of Physics and Astronomy, University of Missouri-Columbia, MO 65211

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