

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Photo-excitation and relaxation dynamics in junction of double-exchange systems WATARU KOSHIBAE, CMRG, RIKEN, Japan, NAOTO NAGAOSA, Dept. of Appl. Phys., Univ. of Tokyo, CMRG, CERG, RIKEN, Japan, NOBUO FURUKAWA, ERATO-MF, Aoyama-Gakuin Univ., Japan — The photo-induced insulator-metal (I-M) transition is studied by the numerical simulation of real-time quantum dynamics of a double-exchange model. We find a characteristic multiplication of particle-hole (p-h) pairs by a p-h pair of high energy during the I-M transition. To examine the conversion from the p-h pairs into electric energy, we perform the numerical study on the junction systems combined by the double exchange models. The numerical results have been revealed including (i) the threshold behavior with respect to the intensity and energy of light, (ii) p-h pairs are well separated and pair annihilation is suppressed, (iii) enhancement of collected carrier by meta-stability of I-M transition.

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Date submitted: 04 Oct 2011

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