Contribution ID: **21** Type: **Oral Presentation**

Density-matrix renormalization group study of the electro-absorption in conjugated polymers

Wednesday, 13 July 2011 11:00 (15 minutes)

<p>A symmetrized and dynamical density matrix renormalization group is used to study 1-dimensional extended Peierls-Hubbard model at half-filling. We have investigated the optical conductivity spectrum and electro-absorption spectrum for low-lying optical exciton with strong, intermediate and weak coupling parameter sets for the on-site and neighbor interactions. We were able to capture the Stark effect in the case of strong coupling under static electric field. The intermediate coupling was found to be clear for weak electric field and destroyed for strong one. We were not able to resolve the splitting in the case of weak coupling due to the small binding energy so that small value of electric field could distroy the exciton.

Level (Hons, MSc,
   PhD, other)?

M.Sc.

Consider for a student
   award (Yes / No)?

No

Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

Yes

Primary author: Mr ABDELWAHAB, Anas (Sudan University of Science and Technology)

Co-authors: ARTOLI, Abdel Monim (Faculty of Science-School of Physics,Al neelain University); Prof. JECKELMANN, Eric (Institut für Theoretische Physik, Leibniz Universität Hannover)

Presenter: Mr ABDELWAHAB, Anas (Sudan University of Science and Technology)

Session Classification: Theoretical

Track Classification: Track G - Theoretical and Computational Physics