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**Application of non-adiabatic electron dynamics to non-linear response and electrical conductivity of materials<sup>1</sup>**  
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Real-time Time dependent density functional theory gives us access to detailed evolution of quantum electronic system, both in the linear and the non-linear regime. As the power and scale of TDDFT computer simulations grows, new phenomena can be captured and studied by this technique. In this talk, we present a new method and simulation results regarding materials undergoing particle radiation and its relationship to the optical response and conductivity. We obtain that there is a minimum of the DC-electrical conductivity as a function of current in a disordered metallic system and present a model that can explain these simulation results.

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