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Non-Sequential Double Recombination High Harmonic Generation in Molecular-like Systems KENNETH HANSEN, LARS BOJER MADSEN, Aarhus University — Non-sequential double recombination (NSDR) high harmonic generation (HHG) is a strongly correlated two-electron HHG process where two electrons combine their potential and kinetic energy into emitting a single photon. We have studied this process in a molecular-like system and found that the two-electron nature of the signal results in the emitted HHG spectrum being dependent on the structure of the molecule, i.e., the nuclear configuration at ionization. A clear dependence in the NSDR HHG signal on the internuclear distance is observed in the cutoffs of the HHG spectrum for large internuclear distances where also an indication of the point of emission (the atom within the molecule from which the electrons is kicked out) can be observed in the HHG spectrum. A change in the NSDR process is observed when a change in the electron charge transfer in the molecule shifts the observed cutoffs in a process not seen in normal one-electron HHG.

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