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Coincidence measurements of channel resolved above threshod ionization of D2O molecule CHUAN CHENG, State Univ of NY - Stony Brook, RUARIDH FORBES, ANDREW HOWARD, PHILIP BUCKSBAUM, PULSE Institute, Stanford University, THOMAS WEINACHT, State Univ of NY - Stony Brook — We use few cycle intense ultrafast laser pulses and coincidence velocity map imaging to investigate strong field Channel Resolved Above Threshold Ionization (CRATI) of D_2O. We use a time stamping camera to make coincidence vector momentum measurements of electrons and ions, allowing us to distinguish multiple ionization channels. Individual Above Threshold Ionization (ATI) peaks can be assigned to leaving the molecule in different states of the molecular cation, indicating that we have direct ionization to multiple states of the cation, involving the removal of HOMO and HOMO-2 electrons. Additional information from electrons and fragment ions measured in coincidence also shows that there is a competition between sequential and non-sequential double ionization.

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