

Abstract Submitted
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Ionization and fragmentation of endohedral fullerenes $\text{Ho}_3\text{N@C}_{80}$ in an intense femtosecond laser field¹ HUI XIONG, Univ of Connecticut - Storrs, LI FANG, University of Texas at Austin, TIMUR OSIPOV, LCLS, SLAC Linac Coherent Light Source, EMILY SISTRUNK, THOMAS WOLF, MARKUS GUEHR, PULSE, SLAC Linac Coherent Light Source, NORA BERRAH, Univ of Connecticut - Storrs — Gas phase endohedral fullerenes $\text{Ho}_3\text{N@C}_{80}$ have been studied by excitation with intense femtosecond laser pulses at 800nm. Multiple charge states were found after the laser excitation. The highest charge state of the mother molecules was found to be $\text{Ho}_3\text{N@C}_{80}^{4+}$. The molecules absorb multiple photons during the excitation, and may release extra energy by evaporating multiple C_2 dimers from the carbon cage. $\text{Ho}_3\text{N@C}_{70}^{n+}$ and $\text{Ho}_3\text{N@C}_{50}^{n+}$ were found to be more stable than other fullerene productions. The molecules may also fragment into Ho^+ , HoC_2^+ and HoCN^+ fragments. The yields of different fragments dependence on laser intensity will be compared to understand the fragmentation pathways.

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