



Dopant induced ignition of helium nanodroplets in intense few-cycle laser pulses

S. R. Krishnan, L. Fechner, M. Kremer, V. Sharma, B. Fischer, N. Camus, J. Jha, M. Krishnamurthy, T. Pfeifer, R. Moshhammer, J. Ullrich, F. Stienkemeier, M. Mudrich, A. Mikaberidze, U. Saalman, J. -M. Rost

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We demonstrate ultrafast resonant energy absorption of rare-gas doped He nanodroplets from intense few-cycle (~10 fs) laser pulses. We find that less than 10 dopant atoms "ignite" the droplet to generate a non-spherical electronic nanoplasma resulting ultimately in complete ionization and disintegration of all atoms, although the pristine He droplet is transparent for the laser intensities applied. Our calculations at those intensities reveal that the minimal pulse length required for ignition is about 9 fs.

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