Nanoplasmas in Intense laser pulses from the NIR to Xrays

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Finite sized targets have a unique place in the physics and application of laser-matter interaction in intense femtosecond pulses. Clusters of atoms or molecules, very often rare-gases, generated in supersonic jets are popular systems to generate these nanoplasmas. Owing to their morphology, not only the interior of these charged nanoparticles, but also their surface and size play an important role in the ensuing physics. These nanoplasmas have been used to generate hot electrons, very energetic ions and even fast neutrals. This intriguing plasma system also opens up pathways to create scenarios in the lab which are astrophysically relevant.