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In-situ nanoparticle detection with Coherent Rayleigh-Brillouin Scattering[1] ALEXANDROS GERAKIS, Princeton Plasma Physics Laboratory, MIKHAIL SHNEIDER, Department of Mechanical Aerospace Engineering, Princeton University, BRENTLEY C. STRATTON, YEVGENY RAITSES, Princeton Plasma Physics Laboratory — We report on the development and application of a new laser diagnostic for the in situ detection of large molecules and nanoparticles. This four wave mixing diagnostic technique relies on the creation of an optical lattice in a medium due to the interaction between polarized particles and intense laser fields. This diagnostic was already successfully demonstrated in atomic and molecular gaseous environments, where the different gas polarizabilities and pressures were successfully measured. Finally, using this diagnostic technique, we demonstrate the first *in situ* measurement of nanoparticles with dimensions of few nanometers and number densities in the order of 10^{12} cm^{-3}, produced in an graphitic arc discharge. References: 1) Gerakis, A., Shneider, M. N. & Stratton, B. C. Remote-sensing gas measurements with Coherent Rayleigh-Brillouin Scattering. Appl.Phys. Lett. 109, 031112 (2016).

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