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Laser ablation synthesis of nano-carbon materials in supercritical fluids[1] SHO NAKAHARA, SVEN STAUSS, HIROYUKI MIYAZOE, TOMOKI SHIZUNO, Department of Advanced Materials Science, Graduate School of Frontier Sciences, The University of Tokyo, MINORU SUZUKI, HIROSHI KATAOKA, Department of Integrated Biosciences, Graduate School of Frontier Sciences, The University of Tokyo, TAKEHIKO SASAKI, Department of Complexity Science and Engineering, Graduate School of Frontier Sciences, The University of Tokyo, KAZUO TERASHIMA, Department of Advanced Materials Science, Graduate School of Frontier Sciences, The University of Tokyo — We report the synthesis of nano-carbon materials by laser ablation of highly oriented pyrolytic graphite in supercritical xenon, using a second harmonic pulsed Nd:YAG laser. Transmission electron microscopy observation and micro-Raman study of synthesized product revealed the presence of nanocrystalline diamond and nanoparticles containing sp^3 CH_x bonds. Furthermore, the synthesis of diamantane and possibly pentamantane and heptamantane was confirmed by gas chromatography-mass spectrometry.

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