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**Nanosecond Pulsed Laser Deposition of Pb Thin Film on Si (111)** BEKTUR ABDISATAROV, DEVON LOOMIS, ILHOM SAIDJAFAR-ZODA, MIKHAIL KHENNER, ALI OGUZ ER, Western Kentucky University — Pb thin film was deposited onto a Si (111) substrate by pulsed laser deposition (PLD). The Pb target was ablated with a Q-switched 1064 Nd: YAG pulsed laser with 5 nanosecond pulse width, 10 Hz repetition rate, and 1 mm beam diameter. Laser energy density, temperature wavelength and the number of pulses were changed. Different thicknesses of the film ranging from 5 to 70 nm were obtained. Morphological structures of the films were measured using scanning electron microscopy and atomic force microscopy. Our results show that laser energy density, wavelength, and temperature play an important role in morphology. In addition, quantum size effects (QSE) were observed on the ultra-thin films and coarsening effects were observed on the films that underwent high-temperature deposition. Experimental observation is supported by theoretical simulations. Ongoing results of Pb film growth on a copper sample will also be presented.

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