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Phase transition of MoS_2 using laser irradiation[1] JAESU KIM, JUNSUK KIM, JINHEE LEE, YOUNGJO JIN, TAESOO KIM, YOUNG HEE LEE, SEONG CHU LIM, Institute for Basic Science, Center for Intgrated Nanostructure physics, Department of Energy Science, Sungkyunkwan University, Suwon 440-746
— The multi-layer 2H- MoS_2 flakes are transferred toSiO_2/Si substrate by mechanical exfoliation method and transformed into 1T-MoS_2 by Li intercalation. The phase change by Li doping leads semiconducting 2H-MoS_2 to metallic 1T-MoS_2 that is confirmed by Raman and PL spectroscopy and I-V measurements. Then, 1T-MoS_2 flakes are locally heated to recover to 2H-MoS_2 using 532nm-laser beam that can increase the irradiated power up to 10 mW. The characteristics of thermally patterned 2H-MoS_2 are investigated by confocal PL and photo-current and I-V measurements. Also, the junction characteristics of 2H- and 1T-MoS_2 flakes will be discussed further in this presentation.

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