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**Temperature-driven and photo-induced MIT behaviors of $VO_2$ nanowires** AHRUM SOHN, DONG-WOOK KIM, Ewha Womans University, JI-WON BYUN, JEONG MIN BAIK, Ulsan National Institute of Science and Technology (UNIST) — $VO_2$ shows a metal-insulator transition (MIT) and structural phase transition (SPT) at critical temperature (Tc) of 343K. It has been known that the MIT and SPT behaviors of $VO_2$ can be tuned by external stimuli such as light, electric-field, and strain. We carried out comparative studies of MIT behaviors of $VO_2$ nanowires during heating-cooling cycles with and without illumination using several light sources (red, blue, and UV). Light can induce change in Tc and hysteresis width of the resistance change. We have investigated influences of light on SPT during MIT. In this presentation, we will discuss possible physical origins for the photo-induced effects on the MIT behaviors of the $VO_2$ nanowires.

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