Profs Mihri Ozkan, Roger Lake and Cengiz S. Ozkan’s collaborative work featured on the cover of December issue of Physica Status Solidi A

In their study presented in the December issue of Physica Status Solidi A, M. Ozkan, R. Lake, C. Ozkan et al. report on the synthesis of few-layer MoSe$_2$ granular films in arbitrary shapes and patterns on SiO$_2$ wafers by rapid thermal processing (RTP) and Raman laser annealing of the stacked elemental layers, which are deposited using electron beam evaporation in the sequence of Mo/Se/Mo. Following the optimization of the thickness of the stacked elemental layers, rapid thermal processing conditions (growth temperature, time and heating–cooling rates) and laser parameters (wavelength, power and exposure time), the quality of MoSe$_2$ can be further improved, and the methods presented can be implemented for the synthesis of other dichalcogenide materials and their hybrid systems with a broad-range of functionalities and applications.

Atomically thin two-dimensional (2D) transition-metal dichalcogenides (TMDs) have attracted great attention recently due to their fascinating electronic properties. MoSe$_2$, with an indirect band gap in the bulk form and a direct band gap in the monolayer form, holds promise for the next-generation electronics and optoelectronics applications.

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