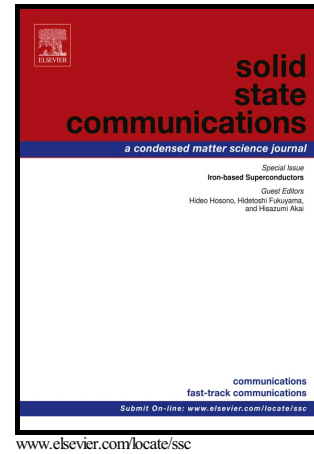


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# Substrate Induced Anomalous Electrostatic and Photoluminescence Properties of Monolayer MoS<sub>2</sub> Edges

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**Abstract:** Monolayer MoS<sub>2</sub> is an emerging two-dimensional semiconductor with wide-ranging potential applications in the next generation electronic and optoelectronic devices. Understanding the influences of the supporting substrates on the physical properties of grown MoS<sub>2</sub> is an important step toward its applications. Here we synthesized two typical rhomboid shaped MoS<sub>2</sub> on MoO<sub>2</sub> and triangle shaped MoS<sub>2</sub> on SiO<sub>2</sub>/Si substrates and characterized them by multiple means of X-Ray Photoemission Spectroscopy, Atomic Force Microscopy, Electrostatic Force Microscopy, Raman and Photoluminescence techniques. We found that triangle shaped MoS<sub>2</sub> exhibits different core level spectra compared with rhomboid shaped

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