

Abstract Submitted
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Few-layer III-VI and IV-VI 2D semiconductor transistors SUKRIT SUCHARITAKUL, Case Western Reserved University, MEI LIU, Shandong Normal University, RAJESH KUMAR, RAMAN SANKAR, FANG C. CHOU, YIT-TSONG CHEN, National Taiwan University, XUAN GAO, Case Western Reserved University — Since the discovery of atomically thin graphene, a large variety of exfoliable 2D materials have been thoroughly explored for their exotic transport behavior and promises in technological breakthroughs. While most attention on 2D materials beyond graphene is focused on transition metal-dichalcogenides, relatively less attention is paid to layered III-VI and IV-VI semiconductors such as InSe, SnSe etc which bear stronger potential as 2D materials with high electron mobility or thermoelectric figure of merit. We will discuss our recent work on few-layer InSe 2D field effect transistors which exhibit carrier mobility approaching $1000 \text{ cm}^2/\text{Vs}$ and ON-OFF ratio exceeding 10^7 at room temperature. In addition, the fabrication and device performance of transistors made of mechanically exfoliated multilayer IV-VI semiconductor SnSe and SnSe₂ will be discussed. **References** [1] Sucharitakul. S. *et al. Nano Lett.* **15**, 3815–3819 (2015).

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