

P2.3020 Controlled CVD growth of MoTe₂ and their use for photodetection

Tuesday, 9 July 2019 14:00 (2 hours)

See full abstract here:

<http://ocs.ciemat.es/EPS2019ABS/pdf/P2.3020.pdf>

Monolayer 2D materials, including graphene and transition metal dichalcogenides (TMDs) are promising materials for applications in optoelectronics. In our laboratory, we have developed a series of strategies to synthesize high-quality graphene and TMDs layers, as well as their heterostructure, with tuneable properties using chemical vapor deposition (CVD). For example, we demonstrate a salt-induced CVD strategy to synthesize mono- and few-layer 1T' and 2H phase MoTe₂, exploiting rich electronic properties of this materials. In addition, we have utilized lithography method to fabricate heterostructures that allow the enhance of plasmon-induced charge transfer and eventually demonstrate great performance when used for near-infrared (NIR) light detection. This study provides a new materials synthesis method aiming for the fabrication of for highly efficient and broadband NIR photodetector.

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