



Münchner Physik- Kolloquium

Winter
2018/19

Synthesis of 2-dimensional materials for applications in electronics

Prof. Dr. Georg S. Duesberg, *Universität der Bundeswehr München*

Monday, 14 January 2019, 17:15 h

Hörsaal H 030, Fakultät für Physik der LMU, Schellingstraße 4, München

Two-dimensional materials such as transition metal dichalcogenides (TMDs) are intensively investigated because of their unique properties, such as thickness dependent band gaps and all surface nature. These properties give rise to new physics and chemistry and have potential for emerging applications. So far mainly group six (Mo/W) TMDs have been investigated, while very little is known about group 10 (Pt/Pd) TMDs. In particular, PtSe₂ has drawn attention due to a transition from synthesis of PtSe₂ by thermally assisted conversion (TAC) of Pt films is outlined. The composition and morphology is shown by several characterization techniques including Raman spectroscopy, X-ray photoelectron spectroscopy, TOF-SIMS and transmission electron microscopy. As large-scale films and pre-patterned structures can be grown, the methodology TAC allows to fabricate electronic devices using standard micro-fabrication technology. This is of particular importance as the synthesis temperature for PtSe₂ can be below 450 °C, allowing (BEOL) integration with silicon devices. Examples for high performance chemical sensors, IR-photodetectors and MEMS devices with PtSe₂ will be presented.

Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Prof. Dr. Georg S. Duesberg before his Munich Physics Colloquium talk.

Be curious and feel free to ask any question.

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Room H 522 (5th floor), Fakultät für Physik der LMU, Schellingstraße 4, München

