

Degenerate N Doping Of Few Layer Transition Metal

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Degenerate N Doping Of Few

We report here the first degenerate n-doping of few-layer MoS2 and WSe2 semiconductors by surface charge transfer using potassium. High-electron sheet densities of $\sim 1.0 \times 10^{13}$ cm⁻² and 2.5×10^{12} cm⁻² for MoS2 and WSe2 are obtained, respectively.

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Figure 2 from Degenerate n-doping of few-layer transition ...

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Degenerate n-doping of few-layer transition metal ...

Literature Review: Degenerate n-Doping of Few-Layer Transition Metal Dichalcogenides by Potassium July 29, 2015 July 29, 2015 / druffeldan The article I am reviewing is called "Degenerate n-Doping of Few-Layer Transition Metal Dichalcogenides by Potassium" (full citation below).

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CiteSeerX - Document Details (Isaac Council, Lee Giles, Pradeep Teregowda): ABSTRACT: We report here the first degenerate n-doping of few-layer MoS 2 and WSe 2 semiconductors by surface charge transfer using potassium. High-electron sheet densities of $\sim 1.0 \times 10^{13}$ cm⁻² and 2.5×10^{12} cm⁻² for MoS 2 and WSe 2 are obtained, respectively.

Letter pubs.acs.org/NanoLett Degenerate n-Doping of Few ...

Recently, molecular dopants consisting of dimers of either 19-electron sandwich compound or of organic radicals have been reported to possess moderate air-stability and can effectively realize n-doping in organic semiconductors, as well as surfaces and low-dimensional materials , including few-layer TMDCs . . . However, to date the use of dimers to dope TMDCs have been limited to solution processing, in which the interfaces established are not sufficiently clean to understand the ...

Degenerate electron-doping in two-dimensional tungsten ...

A degenerate semiconductor is a semiconductor with such a high level of doping that the material starts to act more like a metal than as a semiconductor. Unlike non-degenerate semiconductors, these kind of semiconductor do not obey law of mass action, which relates intrinsic carrier concentration with temperature and bandgap.

Degenerate semiconductor - Wikipedia

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Furthermore, n-type doping in the Ti–WSe 2 FET shows weak degenerate behaviour whereas for Co and Pt contacts, it was possible to modulate the total carrier concentration by gate bias owing to higher barrier height for electron conduction. Finally, the doped devices also showed enhanced hysteresis behaviour, which can be utilized for memory applications.

Non-degenerate n-type doping by hydrazine treatment in ...

Degenerate doping, bandgap narrowing and bandtail states in semiconductors

Degenerate doping in semiconductors - YouTube

Further, several doping mechanisms on MoS 2 have produced degenerate doping, which leads to MoS 2 behaving like a metal with the resultant Fermi level close to the edge of the conduction band (or valence band).⁹ Although degenerate doping is im-portant to tune the Schottky barrier with metal contacts,⁹ nondegenerate doping

Interfacial Nondegenerate Doping of MoS2 and Other Two ...

Even degenerate levels of doping imply low concentrations of impurities with respect to the base semiconductor. In intrinsic crystalline silicon, there are approximately 5×10^{22} atoms/cm³. Doping concentration for silicon semiconductors may range anywhere from 10^{13} cm⁻³ to 10^{18} cm⁻³.

Doping (semiconductor) - Wikipedia

n- or p-type doping of some TMDs can be carried out by decorating with substances with ultra low or high work function. For instance, degenerate n-doping of few-layer WSe 2 and MoS 2 was performed by surface charge transfer using potassium [29]. Also, transition metal oxides such as MoO 3–x [30] and WO 3–x [31].

Reversible electron doping in monolayer WS2 via a chemical ...

This degenerate doping level facilitates 5 orders of magnitude reduction in contact resistance between Pd, a common p-type contact metal, and WSe2. More generally, the work presents a platform for...

(PDF) Air Stable p-Doping of WSe2 by Covalent ...

Degenerate n-Doping of Few-Layer Transition Metal Dichalcogenides by Potassium. Nano Lett. 13, 1991–1995 (2013). Shi Y. et al. . Selective decoration of Au nanoparticles on monolayer MoS 2 single crystals. Sci. Rep. 3, 1839 (2013). [PMC free article]