

# Intercalation chemistry of molybdenum disulfide

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Most relevant features of the fundamental and applied chemistry of MoS<sub>2</sub> are reviewed highlighting the importance of the layered nature of the solid on the optical and catalytic properties of the compounds. Experimental and theoretical aspects related to the 2H-1T-MoS<sub>2</sub> phase change induced by the insertion of lithium are discussed. The principal systems known until this moment, specifically those based on the intercalation of molecular and polymeric organic donors, organometallic species and cations into MoS<sub>2</sub> as well as the methods used for their synthesis, are described. The main characteristic of the products, principally their properties as mixed conductors and the diffusion of lithium inside the interlamellar spaces are discussed. © 2002 Elsevier Science B.V. All rights reserved.