

## MS20-P11 Crystallographic study of layered MS<sub>2</sub> compounds under pressure

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The applications of layered disulfides are vast and range from lubricants [1] and electrode materials [2] to optoelectronic devices and transistors [3]. The structure is built from stacks of sulfur-metal-sulfur ‘sandwich’ layers, and the difference in bonding within and between these layers is of great importance for the properties of the materials.

The interesting electronic properties can be altered either by reducing the single crystal to a mono- or a bilayer, by intercalation, or by pressure - all effects which affect the interlayer S-S interaction [4,5]. However, in spite of the many analyses already performed on these compounds, surprisingly little is known about the true nature of this interaction, and about the crystal structures of high-pressure phases.

In this study, a diamond anvil cell setup has been utilized in a detailed crystallographic investigation of the high-pressure structures of TiS<sub>2</sub> and SnS<sub>2</sub>.

It is the goal of this analysis to expand the knowledge of the S-S interlayer interaction and its impact on the structural changes caused by pressure. Elaborate structural knowledge can in turn lead to a more thorough explanation of the interesting properties of this group of compounds.

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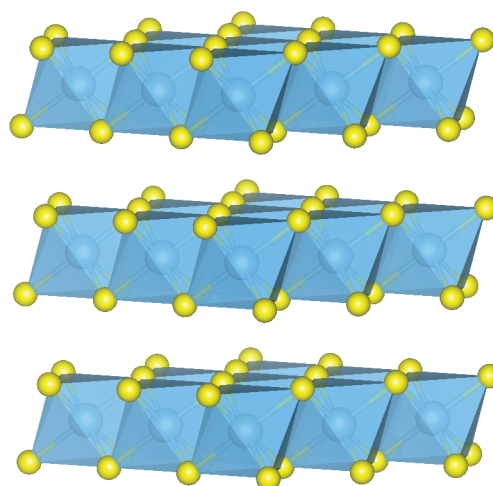


Figure 1. Structure of TiS<sub>2</sub>, space group P-3m1

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