

# Special Materials Seminar

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## **CRYSTALLIZATION AND STRUCTURAL RELAXATION IN CHALCOGENIDE GLASSES**

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Chalcogenide glasses are known as excellent optical materials in the infrared spectral region (3–12  $\mu\text{m}$ ) for more than 60 years. These glasses can be easily molded with high precision to aspheric or diffractive lenses and are now produced industrially, reducing the price of infrared optical systems, used in night vision cameras, e.g., in the automotive industry. They have been also used for chemical sensing, thermal imaging, data recording and are quite promising materials for non-volatile electronic memory given their almost unlimited capacity for composition alloying and property tailoring.

One of the most typical chalcogenide glass-forming compounds is arsenic selenide,  $\text{As}_2\text{Se}_3$ . A comprehensive study of this material involving structural relaxation<sup>1</sup> below the glass transition and crystal growth kinetics<sup>2</sup> in supercooled liquid is presented and discussed. It is shown that the temperature dependent viscous flow in supercooled melt is essential for successful description of these complex processes.

[1] J. Málek, J. Shánělová, J. Non-Cryst. Solids, **351** (2005) 3458.

[2] J. Málek, J. Shánělová, et al., Cryst. Growth & Design, **17** (2017) 4990.

**Friday, October 26**

**1:30 pm in room 8335**