# Raman spectroscopy of reactive 2D materials under an inert gas atmosphere

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Raman spectroscopy is an experimental technique often used in the field of nanotechnology. It uses the Raman effect, the phenomenon of inelastic scattering of photons by the substance. Most commercial Raman spectrometers can only perform measurements in air. This is a very serious disadvantage for many materials, as exposure of the sample to atmospheric conditions can modify the physicochemical properties of the surface.

Examples of such structures are two-dimensional (2D) materials. Research over the last decade has revealed their promising electronic and optoelectronic properties. It seems particularly important to understand the stability of 2D monolayers, especially the study of the effects of oxidation. Even a short exposure to atmospheric conditions causes a noticeable modification of the characteristic peaks of the Raman spectrum.

The integration of the Raman spectroscope with the glove box enables us to both produce and characterize nanomaterials and 2D materials under strictly controlled conditions, hence the reliability of the research results increases.

We present our research and development work on a unique mapping Raman spectrometer that enables characterization in a glove box in an Argon atmosphere. We show the advantage of this approach on the example of molybdenum disulfide and tantalum disulfide flakes.

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