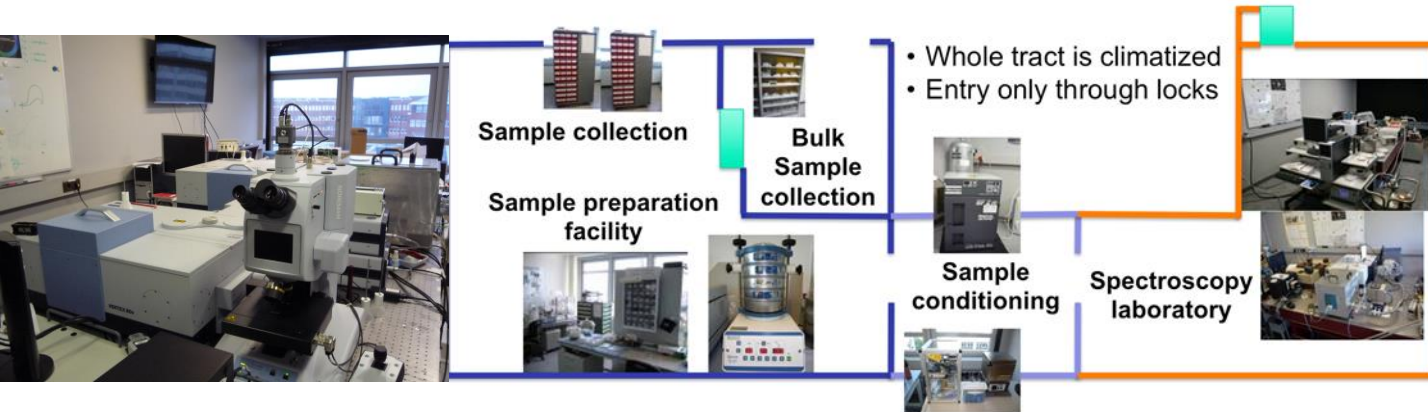


The Planetary Spectroscopy Laboratory (PSL)

Joint Lab of Geo.X partner Institution DLR

The Planetary Spectroscopy Laboratory (PSL) provides spectral measurements in **reflection, transmission and emission** of terrestrial materials, meteorites, synthetic samples as well as technical materials like e.g. coatings from the ultra-violet to the far-infrared range. Measurements can be **performed under atmosphere and vacuum over a wide temperature range (-100°C – 600°C)**.



Services offered by the infrastructure: in air-conditioned room, **3 identical FTIR instruments Bruker Vertex 80V** (high-end model) that can be evacuated to ~ 0.1 mbar are operating. The instruments share many optical devices to cover a very wide spectral range.

Spectrometers and accessory units are automatized and data **calibration and reduction** are made with **quality controlled DLR software**.

External simulation chambers are attached to each of the instruments for emissivity measurements. One chamber allows emissivity measurements from **0.7 to 200 μm under vacuum for sample temperatures from 320K to above 900K**, using an innovative induction system. The second chamber is **purged with dry air and water cooled to $\leq 270\text{K}$** to allowing **emissivity measurements of samples with surface temperature from 290 to 420K**. A liquid nitrogen cooled sample holder allows **measurements on cryogenic and ice samples**.

The **Bruker FT-IR Microscope HYPERION2000** has a high-quality design, including all optical, mechanical, and electronic components, to provide **high stability and reliability, for reflectance and transmission microscopy**.

To investigate samples at **temperatures from -196 to 600°C**, a **Linkam THM600 stage** is used. To support the laboratory activities a **sample preparation laboratory with a dedicated technician** is available.

PSL has a **large collection of hundreds of rocks and minerals, synthetic minerals, Apollo 16 lunar sample, and meteorites**.

http://www.dlr.de/pf/en/desktopdefault.aspx/tabid-10866/19013_read-44360/

PSL is a **facility offered to Geo.X partners**. **Guests visiting the facility under this program will have full access to the spectroscopy laboratory, sample collection, and preparation facility** and will be **followed/instructed** from our **experienced technicians and scientific collaborators**.

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