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## **Emissivity Measurements of Analog Materials for the Interpretation of Data from PFS on Mars Express and MERTIS on BepiColombo.**

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The Planetary Fourier Spectrometer (PFS) onboard the Mars Express Mission provide thermal infrared, hyperspectral images of Mars and in the future the selected payload Mercury Radiometer and Thermal Infrared Spectrometer (MERTIS) on the Bepi Colombo Mission will collect analogous data for Mercury. To interpret these remote sensing data it is essential to understand the spectral emittance of planetary analog materials.

The Kirchhoff's law ( $\varepsilon = 1 - R$ ;  $\varepsilon =$ Emissivity, R=Reflectance) is valid only for hemispherical reflectance measurements, while most laboratory reflectance measurements are performed at biconical geometry. Therefore a spectral library of emissivity measurements is needed. The present study presents emissivity spectra of feldspars and some other relevant materials in the wavelength range from 6.3 to 22  $\mu$ m as a function of particle size. For each sample we measured the spectra of four particle size separates ranging from 0 to 125  $\mu$ m.

The device we used is built at DLR (Berlin) and is coupled to a Fourier transform infrared spectrometer (Bruker IFS 88), purged with dry air and equipped with an MCT-detector. All spectra were acquired with a spectral resolution of  $4 \text{ cm}^{-1}$ .