SSHADE Users Newsletter – April 2024 –

Focus on optical constant

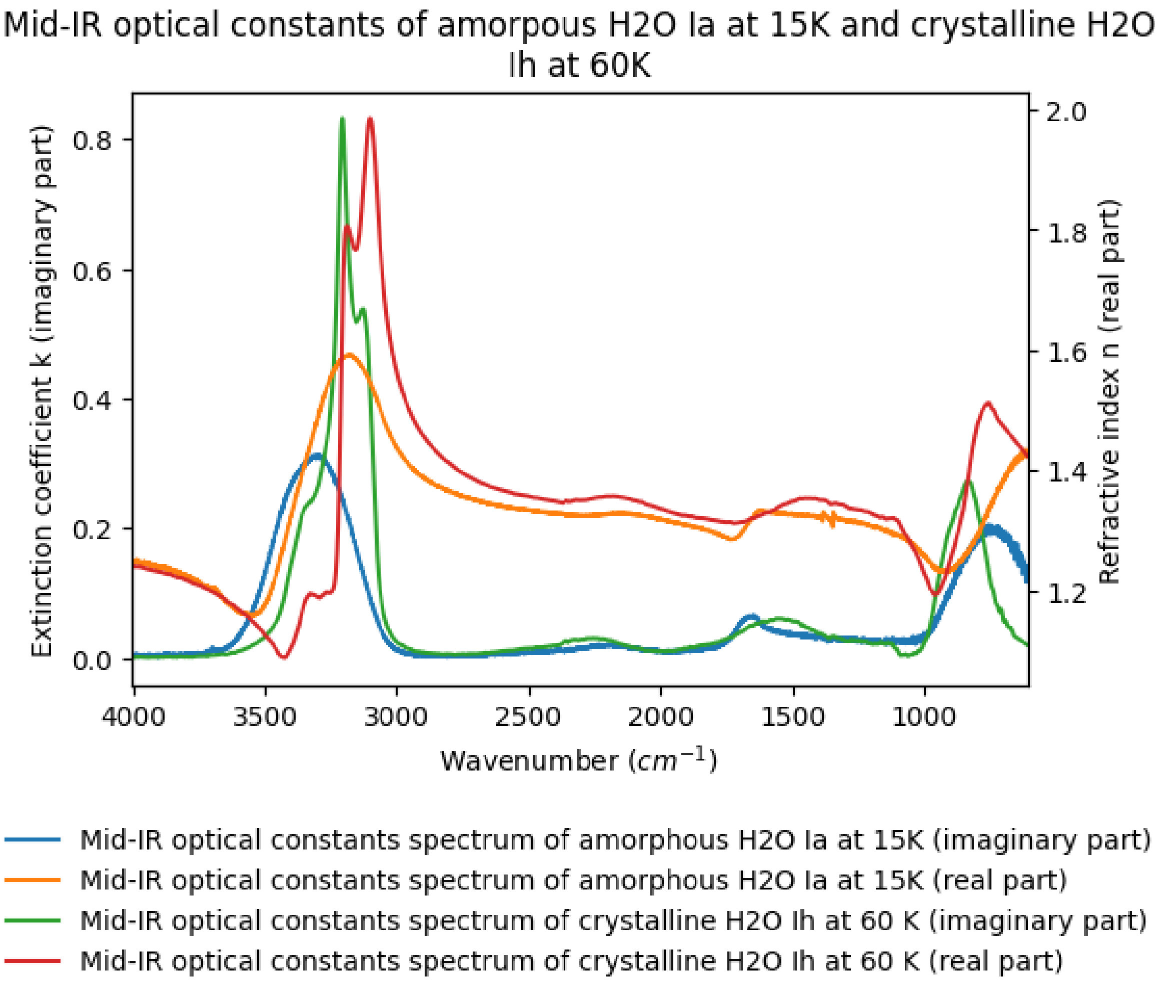
Dear SSHADE users,

This month, we would like to focus on a high-level type of data available in SSHADE: the optical constants. They are very important fundamental properties as they govern the reflection, transmission, and absorption of light within solid materials. Almost 300 spectra of optical constants, including both the refractive index and the extinction coefficient, are already available in SSHADE for various materials: ices, minerals, organics, synthetic materials…

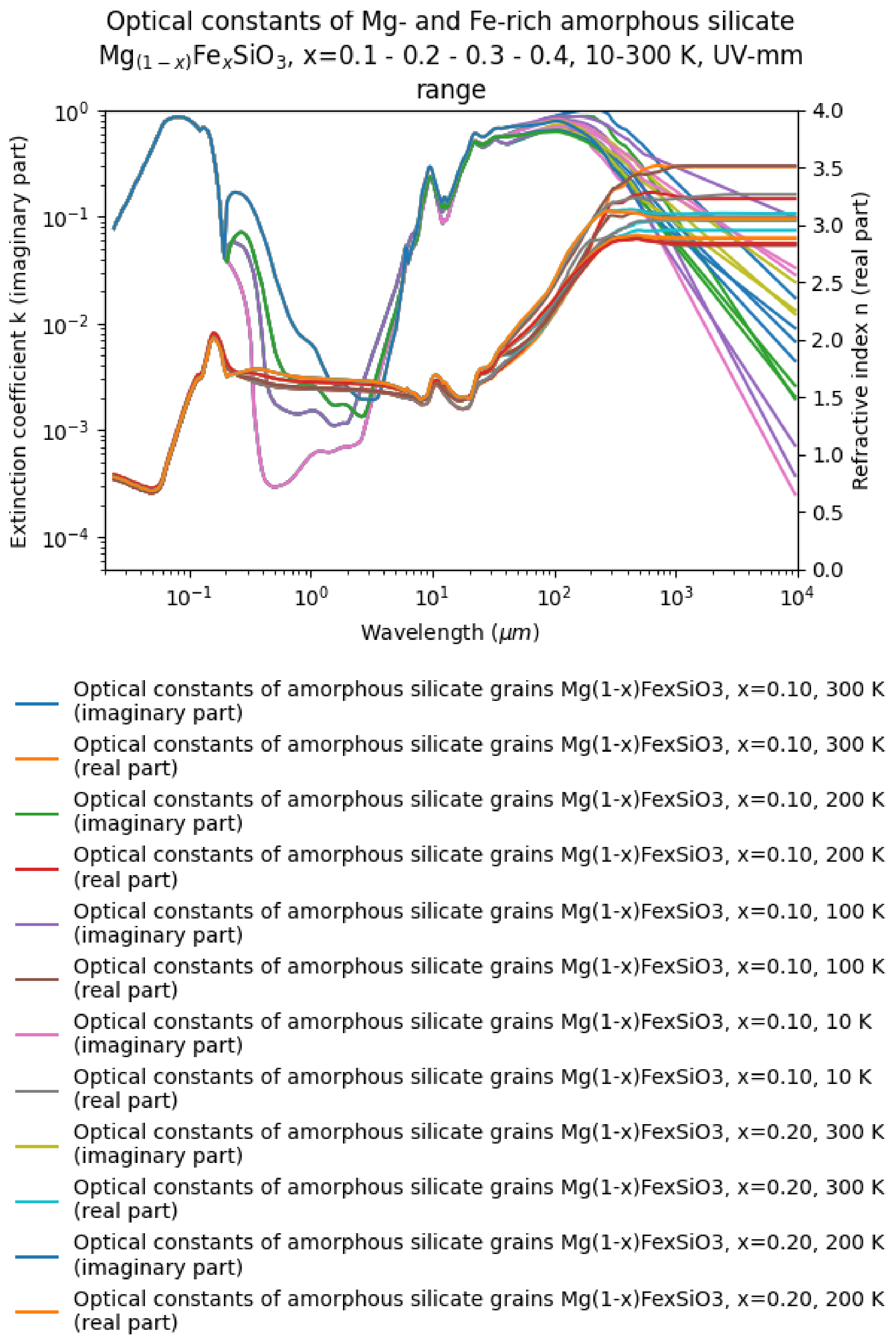
Highly valuable in astrophysics, complex refractive indices are used in radiative transfer models (for example, Mie model) that can, for instance, provide access to parameters of the interstellar medium such as grain size, composition, temperature, and even their thermal history.

The optical constant spectra encompass a large spectral range and various types of measurements. You can see all available data by selecting 'optical constants' in the "Spectrum Type" filter.

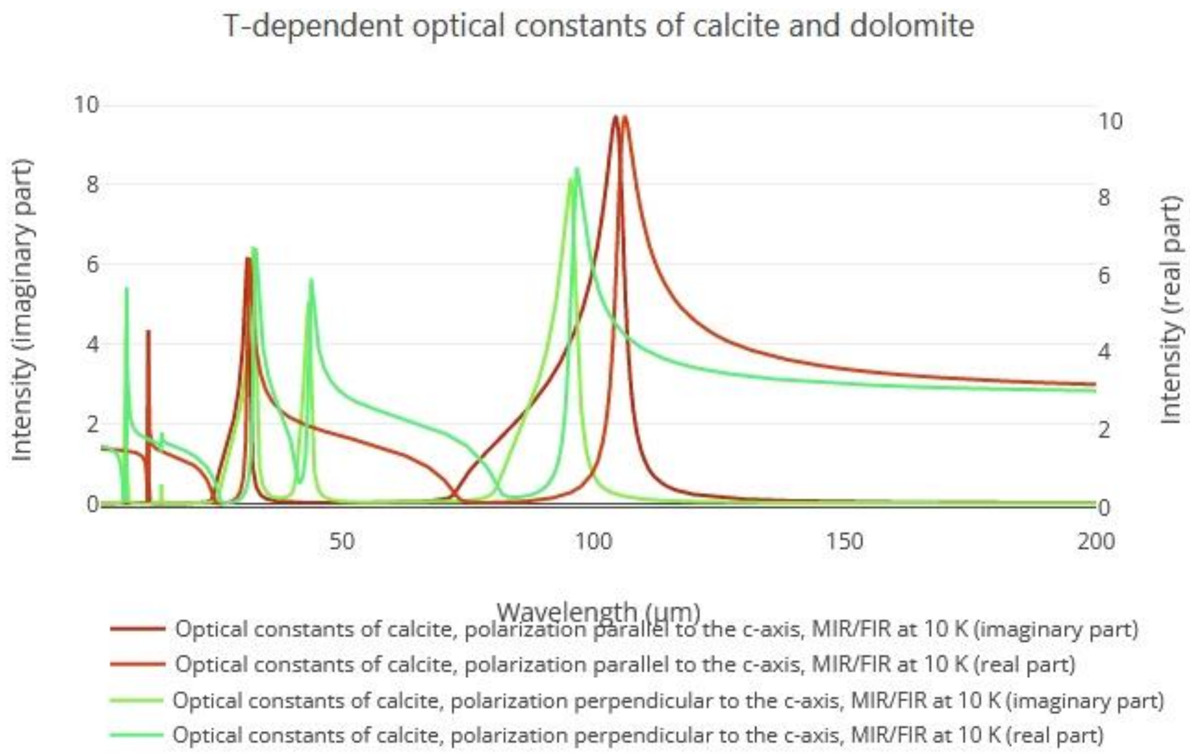
- Mid and far-IR data concerning amorphous and crystalline phases of ices, as for [H_2O ice]:



- Optical constants at low temperature (down to 10K) of synthetic materials with varying composition, as for amorphous silicate dust analogues in the UV-mm range. The analogues are four Mg-rich silicate samples of stoichiometry ranging from enstatite to olivine, and of eight samples of Mg and Fe rich silicates with a pyroxene stoichiometry and differing magnesium and iron content.



- Data for different crystal orientations, as for carbonates in the mid/far- IR [2-200 µm]



Stay tuned for future data.

Have fun with SSHADE data!

The SSHADE Team

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