Variations of molecular features in mass-losing AGB stars and dynamical model atmospheres

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Abstract

We present synthetic spectra of oxygen-rich AGB stars, which include linelist data for molecular species like CO, H_2O and SiO. The spectra are calculated from hydrostatic MARCS atmospheres as well as from dynamical model atmospheres by Höfner et al. containing dust formation. The results are compared with each other and the effects of spherical geometry, dust formation and atmospheric shocks are discussed.

The calculated spectra are then compared with ISO-SWS observations of oxygen-rich mass-losing AGB stars. Some of the objects were observed by ISO at different phases of their pulsational cycle, which makes it possible to study the spectral variations. As it turns out, classical hydrostatic model atmospheres are not able to reproduce our ISO data. Thus, it is very important to use dynamical atmospheres in order to get correct results for AGB stars.

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