

Self-consistent modelling of stellar and sub-stellar atmospheres.

Uffe G. Jørgensen,¹ Niels Bohr Institute, Univ. of Copenhagen

Quantitative interpretation of stellar and exoplanetary spectra requires high quality self-consistent modelling of the underlying atmospheres in order to give meaningful information about their physical and chemical structure. High resolution spectra of exoplanets, as those that are expected during the coming years, impose particular challenges and possibilities for understanding the physics in the parameter space in between well tested stellar modelling and well tested Earth climate models. We have already had very high resolution spectra of Mars for more than 50 years without being able to tell whether or not they show traces of life. Answering similar questions about exoplanets will require improved modelling, and may in particular benefit from more detailed understanding of the general cloud formation process and the basic molecular radiative processes. I will talk about some of the challenges, and about our own attempts to contribute to the progress by drawing on experience from cool stellar modelling.

¹uffegj@nbi.dk