ATOMIC AND MOLECULAR DATA FOR STELLAR ATMOSPHERES MODELLING – EXAMPLE OF PHOENIX CODE

Darko Jevremović

Astronomical Observatory, Volgina 7, 11060 Belgrade, Serbia
E-mail: darko@aob.rs

For the investigation and modelling of stellar atmospheres atomic and molecular data for a huge number of neutral and ionized species are needed. In this contribution we will review such needs, on the example of PHOENIX, a general stellar atmosphere code, used from novae/supernovae to brown dwarfs/extrasolar planets - now even AGN's neutron stars etc. There are more than 500 papers concerning PHOENX, describing obtained results, and the used methods.

An illustration of the need for atomic and molecular data for stellar atmospheres modelling might be that PHOENIX has a list of ~42×10^6 atomic lines and ~10^9 molecular lines. We will review here the problems where AM data are needed for PHOENIX, highlights of results obtained with this code, ^{6}Li problem and Atmospheric models for evolutionary modelling and populations synthesis.