

**ATOMIC AND MOLECULAR DATA - APPLICATION
ON FORMATION OF MOLECULES IN DARK CLOUDS**

Aleksandra Dobardžić and Andjelka Kovačević

*Faculty of Mathematics, University of Belgrade, Studentski trg 16,
11000 Belgrade, Serbia*
E-mail: aleksandra@matf.bg.ac.rs

Our knowledge about composition and evolution of molecules in space is constantly changing through ground-based and space observations, as well as laboratory simulations and theoretical modeling. With observations we can obtain molecular abundances in a variety of environments. For example abundances of different molecules in dark clouds were measured by SWAS satellite. Here we present how input data can change resulting molecular abundances in dark clouds. We show this on H₂O and O₂ molecules. Resulting molecular abundances depend on many factors: physical parameters such as temperature, density or the amount of cosmic rays; initial abundances of different elements; chemical reaction and collision rates etc. In order to model chemistry of any environment many atomic and molecular data are needed. Virtual Atomic and Molecular Data Centre (VAMDC) can be used to search different databases in order to obtain needed data, for example collision rates that are used to model dark cloud chemistry.