IX SERBIAN CONFERENCE ON SPECTRAL LINE SHAPES IN ASTROPHYSICS
May 13-17, 2013, Banja Koviljača, Serbia
Book of Abstracts, Eds. L. Č. Popović, M. S. Dimitrijević, Z. Simić and M. Stalevski
Astronomical Observatory Belgrade, 2013

RADIATIVE TRANSITIONS IN FEW ELECTRON QUASYMOLECULES

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Calculations of spectral profiles produced by atom/ion collisions need some preliminary quantum chemical information such as potential energy surfaces, dipole transition moments, etc. The main advantage of few electron systems is that all input data can be obtained *ab initio* or analytically thus the profiles calculated do not include any fit parameters. It is supposed to discuss two specific examples. The first one deals with radiative transitions produced by charge exchange in collisions of $He^+(n=3)+H^+ \rightarrow He^{2+}+H(n=1)$. The second example concerns radiative transitions produced by the $H+H^-$ collisions. For both cases the profiles as well as the total cross sections of the processes have been calculated.