Recombination of Atomic Ions #9781461534709 #W.G. Graham, W. Fritsch, Y. Hahn, J.A. Tanis #345 pages #Springer Science & Business Media, 2012 #2012

For each ion in the CHIANTI database, elemental abundances, ionization potentials, atomic energy levels, radiative rates, electron and proton collisional rate coecients, ionization and recombination rate coecients, and collisional ionization equilibrium populations are provided. In addition, parameters for the calculation of the continuum due to bremsstrahlung, radiative recombination and two-photon decay are provided. A suite of programs written in the Interactive Data Language (IDL) are available to calculate line and continuum emissivities and other properties. All data and programs are fre The dissociative recombination of molecular ions and electrons is the most effective mechanism of volume charge neutralization in weakly ionized plasmas under moderate (tens and hundreds torrs) and high pressures. The cross sec-tion of an electron being captured by a molecular ion at thermal energies of the particles reaches a value of approxi-mately 10-l3 cm2, with the result that the process plays a key role in the kinetics of the charged plasma particles and the molecular ions.Â to the dissociative recombination of heterogeneous ions. with thermal atoms and hence, all other things being equalÂ The very weak glow initiated by the atomic transitions in neon in the early afterglow stage suggested that the relative concentrations [Ne+]/[e], [HeNe+]/[e], and [Ne:]/[e] are low (Fig. Dissociative Recombination of Molecular Ions with Electrons is a comprehensive collection of refereed papers describing the latest developments in dissociative recombination research. The papers are written by the leading researchers in the field. The topics covered include the use of microwave afterglows, merged beams and storage rings to measure rate coefficients and to identify the products and their yields. The molecules studied range in size from the smallest, H2+, to bovine insulin ions. The theoretical papers cover the important role of Rydberg states and the use of wave packets and qua Plasma Investigations. Recombination kinetics of atomic ions in dense low-temperature nonisothermal plasmas. A. A. Kudryavtsev, A. G. Nikitin. Leningrad State University. Abstract: The recombination kinetics of atomic ions is examined on the basis of a modified diffusion approximation including collisions of excited atoms with both electrons and neutrals. The relationship between the discrete and differential descriptions for theflux over excited states is analyzed for a transition to a quasicontinuous variation in the energy. It is established that the recombination coefficient can be found i Stationary vdf (a) and negative ion density (b) calculated distributing the heterogeneous atomic recombination up to the v-th vibrational level in multicusp magnetic plasma.[39] Coupling of Plasma Chemistry, Vibrational Kinetics, Collisional-Radiative Models and Electron Energy Distribution Function Under Non-Equilibrium Conditions: Coupling of Plasma Chemistryâ€¦Â We report on measurements of dissociative recombination of ions populated in a range of initial vibrational levels with free electrons in the energy range of 0 - 20 eV. A photodis-sociation technique was applied to modify the vibrational distribution, and the influence on the dissociative-recombination (DR) spectrum was studied.