

COLLISIONAL DATABASES WITHIN VAMDC: SYNERGY WITH RADAM and Nano-IBCT COST ACTIONS

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Although the idea of creating a collisional database that would cover cross section data for electron interactions with atomic and molecular targets existed for a long time at the Institute of Physics Belgrade, only after beginning of the COST Action P9 RADAM (acronym for Radiation Damage), *Radiation Damage in Biomolecular Systems*, it started to materialize. One of the important goals of RADAM that lasted four years, from 2003 till 2007, was to produce set of comprehensive databases which would cover different aspects of radiation damage. This idea was further developed within successor COST Action MP1002, *Nano-scale insights in ion beam cancer therapy (Nano-IBCT)*, when five distinctive areas of data collections (interactions of ions, electrons/positrons, photons, multiscale RADAM phenomena and radiobiological phenomena) were gathered into one RADAMDB portal. All those databases had been created using the Virtual Atomic and Molecular Data Center (VAMDC) standards. Adopting these standards and sharing the same idea of distributed nodes of individual databases both consortia, VAMDC and RADAMDB, became decisive provider of atomic and molecular data, relevant for many other fields of science and technology (astrophysics, plasma, lasers, lighting, radiation treatment). Presently there are 39 active nodes within VAMDC that comprise large national and international facilities dedicated to

provide accurate data (AMBDAS database, Cologne Database for Molecular Spectroscopy - CDMS, Harvard-Smithsonian Center for Astrophysics with HITRAN database, Atomic Spectra Database, Japan National Institute for Fusion Science – NIFS with its Atomic and Molecular Research Center, as well as databases from large international projects like Opacity or Iron project). Institute of Physics Belgrade became an important pillar of VAMDC holding at present two nodes: BEAMDB - Belgrade electron/atom(molecule) database and Photodissociation - MolD database with the prospect to add two more nodes, Collisional Atomic Processes (Excitation-Ionization) - ACol database and database with Judd-Ofelt parameters.