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Atomic and Molecular Physics for Forefront Astronomy

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Domain : Astrophysics

Across a wide range of wavelengths and encompassing a rich menagerie of astrophysical objects and environments, the need for atomic and molecular data to advance forefront astrophysical research has never been greater. Over the last decade, astronomical discoveries, such as the detection of brown dwarfs and extra-solar planets, and the observation of new phenomena, such as x-rays from comets, have created a demand for more and different kinds of data. The next generation of ground- and space-based instruments with greater sensitivities and higher spectroscopic resolution will expand our windows on the Universe, increasing the pressure for atomic and molecular data of higher accuracy and greater completeness. Examples of recent successes as well as future opportunities for research in this area will be discussed.