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## An atomistic view of the universe

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Astronomy, arguably the oldest of all physical sciences, has been the source of much our current understanding of the fundamentals processes that shape the physical world. Thus, it was through astronomical observations that atoms were recognized and their nature was understood. Since then, astronomy and atomic physics have progressed jointly and interdependently. In this talk, I review such progress in astronomy and atomic physics up to the present. I show that atomic physics for astrophysics is today as vibrant and important as ever. Then, I describe some of the work we carry out at Western Michigan University. Finally, I discuss some pressing questions for the future, whose answers will require major theoretical and experimental advances.

### Biography

Manuel Bautista is Associate Professor Astrophysics in the Department of Physics at Western Michigan University. He does theoretical research in atomic processes and atomic data for modeling of spectra from astronomical sources. His research is applicable to the study of many astronomical objects, such as stellar atmospheres and interiors, planetary atmospheres, supernovae and active galactic nuclei. He also models astronomical photoionized plasmas. He employs various computational tools, including massively parallel computers, to calculate properties of atoms and ions and to model the interactions between ions, light and particles in astronomical plasmas.

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