

Laboratory Astrophysics: Enabling Scientific Discovery and Understanding

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Abstract

NASA's Science Strategic Roadmap for Universe Exploration lays out a series of science objectives on a grand scale and discusses the various missions, over a wide range of wavelengths, which will enable discovery. Astronomical spectroscopy is arguably the most powerful tool we have for exploring the Universe. Experimental and theoretical studies in Laboratory Astrophysics convert "hard-won data into scientific understanding".² However, the development of instruments with increasingly high spectroscopic resolution demands atomic and molecular data of unprecedented accuracy and completeness. How to meet these needs, in a time of severe budgetary constraints, poses a significant challenge both to NASA, the astronomical observers and model-builders, and the laboratory astrophysics community. I will discuss these issues, together with some recent examples of productive astronomy/lab astro collaborations.

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²NASA Science Strategic Roadmap, May 26, 2005, at <http://www.spaceref.com/news/viewsr.html?pid=16753>