

Charter for the 2010 NASA LAW

Purpose of workshop: The purpose of the Laboratory Astrophysics Workshop (LAW) 2010 is to provide a forum within which the scientific community can review the current state of knowledge in the field of Laboratory Astrophysics, assess the critical data needs of NASA's current and future space astrophysics missions, and identify the challenges and opportunities facing the field as we begin a new decade. LAW 2010 is sponsored by the Astrophysics Division of NASA's Science Mission Directorate (SMD).

Target audience: Laboratory Astrophysicists and Astrochemists (experimentalists, theorists, and modelers), Astronomers and Astrophysicists (observers, theorists, and modelers), Space Mission Scientists, Instrument Developers and other interested researchers.

Specific Goals: LAW 2010 will:

1. Review the current state-of-the art in laboratory astrophysics;
2. Review the recommendations of previous LAWs and assess progress toward meeting those recommendations.
3. Identify the critical data needs of NASA's current and future planned space astrophysics missions, and assess the degree to which NASA-supported research efforts currently address those data needs;
4. Assess the strengths, weaknesses, opportunities, and threats facing NASA's Laboratory Astrophysics program in the context of the Astro2010 Decadal Survey report;
5. Formulate a White Paper summarizing the key findings from the workshop for submission to the NAC Astrophysics Subcommittee and the Astrophysics Division (draft to be submitted by 25 Jan 2011; final report to be submitted by 25 Feb 2011);
6. Generate a volume of science proceedings from the workshop that will serve as a reference to NASA and the community, and distribute that volume through the NASA Astrophysics Data System (ADS).

Overview: LAW 2010 is the fourth in a series of NASA-sponsored Laboratory Astrophysics Workshops. Held approximately quadrennially, previous LAWs were held in 1998 (Harvard-Smithsonian Center for Astrophysics), 2002 (NASA Ames Research Center), 2006 (U. Nevada, Las Vegas). The strength of these workshops lies in bringing together producers and users of laboratory astrophysics data so that they can understand each other's needs and limitations in the context of NASA's mission needs. The workshops also serve to increase collaboration and cross fertilization of ideas thereby ensuring that the priorities of NASA's Laboratory Astrophysics Program are aligned with the critical data needs of NASA's space astrophysics missions, and that the products of NASA-sponsored Laboratory Astrophysics research feeds back to the user community in a timely way.

The single most important and valuable deliverable from LAW 2010 will be the White Paper summarizing the proceedings and outcomes of the workshop. That White Paper

should provide detailed findings on the critical laboratory astrophysics data that are required to maximize the scientific return on NASA's past, current, and future planned space astrophysics missions. The White paper should also outline specific opportunities and threats facing NASA's Laboratory Astrophysics Program, and articulate concrete actions by which the Agency can capitalize on the opportunities and mitigate the challenges.

Another important item in the White Paper should be a tabulation of recent significant astronomical results where the input from laboratory astrophysics was of critical importance (although the laboratory astrophysics contribution may not have received the credit due it, as is so often the case). The current funding environment, including the very difficult years ahead, will require a certain amount of salesmanship.

Lastly, with an eye on the future, a discussion should also be given as to what can be done in order to help foster the creation of new faculty positions and the education and production of future generations of laboratory astrophysics scientists.

Specific Issues/Questions for Consideration:

- What steps could be taken to increase collaboration, cooperation, and communication within the NASA Laboratory Astrophysics Program?
- How should laboratory astrophysics databases be organized to minimize redundancy and cost, validated to ensure data consistency and quality, and curated to guarantee easy, widespread access by the community of data users?
- How might a new initiative in supporting laboratory astrophysics research (e.g. group/team awards, centers of excellence, NASA Laboratory Astrophysics Institute) be structured and implemented so as to augment the current program?
- What is the role of NASA's field centers and scientists in pursuing the Agency's critical Laboratory Astrophysics data needs?
- What steps can NASA take to attract new talent (e.g. graduate student/post doctoral fellowships, targeted proposal opportunities for junior faculty.)

Agenda: The workshop will feature invited talks by members of the scientific community representing data users. The invited speakers will provide a broad overview of the needs in the field. The workshop will also feature shorter talks and posters by data producers (NASA Laboratory Astrophysics Program grantees and others). Breakout sessions chaired by the Scientific Organizing Committee members will be held to promote discussion of focused issues of importance to meeting the critical data needs of NASA space astrophysics missions.