



***Beyond the Solar System
Professional Development Project***

NASA-Smithsonian Universe Education Forum
Summer Leadership Institute
31 July – 4 August 2006

Dear Astronomy and Space Science Professional Development Provider,

We are delighted to inform you of an exciting opportunity designed for teacher-educators who plan, design, and implement astronomy, Earth and space science, or physical science professional development programs for teachers of middle and high school students.

The Science Education Department at the Harvard-Smithsonian Center for Astrophysics (CfA), in association with NASA's Universe Education Forum, is now accepting applications for participation in the first Summer Leadership Institute for our *Beyond the Solar System Professional Development Project*, a program aimed at increasing the quality and quantity of standards-based space science education for students in grades 8-12.

We will select 24 space science professional development providers nationwide to attend the *Beyond the Solar System Professional Development Summer Leadership Institute*, to be held at the CfA in Cambridge, Massachusetts from Monday, 31 July through Friday, 4 August 2006. Lodging, travel and meal expenses will be included and an additional stipend of \$500 provided. Out-of-town participants should plan to arrive in Boston on Sunday afternoon, 30 July 2006.

Background

The *Beyond the Solar System Professional Development Project* draws on the latest resources from both the scientific *and* educational research communities in order to help teachers deepen their own and their students' understanding of our universe, and of the nature of science. The specific goals of the project are to:

- 1) *Increase the number of teachers* who engage students with content about the structure and evolution of the universe, including Big Bang cosmology and the evidence that supports this current scientific model.
- 2) *Improve student outcomes* after learning about such subjects by enhancing the quality of the classroom instruction and student engagement. Embedded in this goal is helping teachers to deepen both their content and pedagogical content knowledge.

Recently, we collaborated with the video producers of *A Private Universe* and *Minds of Our Own* to create *Beyond the Solar System: Expanding the Universe in the Classroom*, a multimedia DVD that contains a rich set of science content and teaching and learning resources for teacher professional development. The modular resources on the DVD include:



- video descriptions of key concepts and evidence needed to understand the origin and evolution of the universe
- science visualizations to help build accurate mental models of the universe
- interviews with scientists researching current frontiers in astrophysics
- student interviews highlighting common conceptual barriers to deeper understanding of space science concepts
- documentary footage of real students and teachers using field-tested *Beyond the Solar System* classroom activities and assessments
- extensive print materials, teacher and student lesson guides including online telescope investigations, and assessments

This Summer Leadership Institute will use the *Beyond the Solar System* DVD as a centerpiece for enhancing participants' own teacher professional development programs, both in pre-service and in-service settings. Portions of it can also be used in high school and introductory college classrooms, distance-learning programs, and in informal science education settings such as museums, planetariums, and community-based organizations.

During the Institute participants will:

- a. become thoroughly familiar and comfortable with the pedagogical and science content of the DVD for use in teacher professional development;
- b. learn how the DVD links together contemporary research in science learning and recent discoveries in astronomy, and make plans to integrate these elements into new or existing professional development programs;
- c. work collaboratively with fellow teachers-educators to create a core leadership team for the *Beyond the Solar System Professional Development Project*; and
- d. receive multiple copies of the DVD for distribution to space science educators and additional professional developers through post-Institute workshops and programs.

Intended activities for the Institute include:

- Immersion in science content via hands-on exploration of and reflection on all classroom activities included on the DVD.
- Investigation and modeling of the multiple ways *Beyond the Solar System* resources can be used in a variety of professional development and learning settings.
- Break-out seminars and discussion sessions with CfA scientists and science education researchers, focusing on recent discoveries in astrophysics and the findings of SED staff about science learning, teaching, and assessment.
- Establishment of a new collaborative leadership team of professional development providers for space science education.
- Exploration of the diverse resources of the world's largest astrophysical research institution, as well as the culture and history of the surrounding area.



Responsibilities during the Institute and upon returning home include:

- a. Full participation in all the Institute sessions
- b. Development and implementation of a coherent plan for using *Beyond the Solar System* professional development resources beyond the duration of the Summer Institute
- c. Contribution to the development of future *Beyond the Solar System* activities and resources
- d. Participation in follow-up activities via an online community, plus optional activities at meetings and conferences
- e. Submission of follow-up reports from post-Institute professional development sessions, including participant data and evaluations, along with pre- and post-test scores.

If you are interested in applying for the Institute please email btss@cfa.harvard.edu with your contact information and institutional affiliation, along with a short CV or resume and a brief personal statement (500 words or fewer) describing the following:

- Your experience and current involvement in leading teacher professional development programs, including any types of evaluation you have used to assess the effectiveness of your programs.
- The types of teacher/student audiences with whom you work (including approximately how many per year), and subject matter emphases.
- Your interest in the *Beyond the Solar System Professional Development Project* — what you hope to bring to, and get out of the Summer Leadership Institute
- Anticipated ways in which you might integrate *Beyond the Solar System* resources into your own professional development work

Applications are due by **May 15, 2006**, with notification on or about May 31.

For additional information about the *Beyond the Solar System* Summer Leadership Institute and DVD, please visit www.universeforum.org/btss/institute.

Questions may also be directed to:

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