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Board on Physics and Astronomy

Final Progress Report
to the Department of Energy's Office of Science

on the

DOE Patent Clearance Granted

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COMMITTEE ON NUCLEAR PHYSICS

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Summary

The Committee on Nuclear Physics (CNP), under the National Research Council's (NRC) Board on Physics and Astronomy (BPA) conducted an assessment of the field as part of the BPA's physics survey, *Physics in New Era*. The assessment presented recent advances and developments in nuclear physics and set out recommendations to assist the physics community, government agencies, and Congress in planning the future of this field in the context of the nation's overall physics effort.

Activities

With support from the Department of Energy and the National Science Foundation (NSF), the committee began in October 1996 with the first of three meetings to prepare its draft report. The committee found it essential to involve the nuclear physics community and heard presentations at its meetings from a wide range of people, including "Nuclear Physics Community Input" from Lee Riedinger, Chair of the Division of Nuclear Physics of the American Physical Society (APS). The CNP also heard from upper-level agency management on the broad government perspective on the CNP study: Dr. Ernest Moniz, Associate Director for Science, Office of Science and Technology Policy; Dr. John Hunt, Acting Director, Mathematics and Physical Sciences, National Science Foundation (NSF); Dr. David Hendrie, Director, Nuclear Physics Division, Department of Energy (DOE) Office of Energy Research (OER) for Dr. Martha Krebs, Director, OER; and Mr. Thomas Weimer, Staff Director, Basic Research Subcommittee, House Science Committee. Programmatic views from the government agency perspective were given by Dr. Robert Eisenstein, NSF Physics Division Director; Dr. Jack Lightbody, NSF Nuclear Physics Program Manager; and Dr. Hendrie. For coordination with the BPA's Committee on Elementary-Particle Physics (CEPP), the CNP called on Prof. Bruce Winstein, Chair of the CEPP, to describe the status of that committee's efforts. The committee also drew on the Nuclear Science Advisory Committee's Long-Range Plan.

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Results

The CNP report successfully passed NRC review, and the edited, color-illustrated report *Nuclear Physics: The Core of Matter, The Fuel of Stars* was published by National Academy Press in early 1999. Following publication, the Chair of the CNP, Prof. John Schiffer, accompanied by NRC Senior Program Officer Dr. Robert L. Riemer, gave presentations on the report and its recommendations to DOE, NSF, and congressional staff.

The report addressed topics such as the research agenda for nuclear physics; accelerator and detector advances; the relationship with elementary-particle physics, astrophysics and cosmology, and other allied fields; the field's role in education; its role in providing skilled personnel for other fields and for industry; infrastructure issues, including employment of physicists; the standing of U.S. efforts relative to those abroad; international collaboration; and the balance between experimental and theoretical work.

Along with the other survey reports in the *Physics in a New Era* series, the CNP report is being used by the Physics Survey Overview Committee to prepare the Overview report, which is expected in mid-2001.

The report was prepared in sufficient quantity to ensure its distribution by the BPA office to the sponsoring agencies, to the committee, and to relevant parties in accordance with the National Academies' policy and is available to the public without restriction. The entire text of the report with illustrations is posted on the National Academies' website at www.national-academies.org/publications.