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Nuclear Physics

The mission of the [Office of Science Nuclear Physics](#) program is to foster fundamental research in nuclear physics that will provide new insights and advance our knowledge on the nature of matter and energy and develop the scientific knowledge, technologies and trained manpower that are needed to underpin the Department of Energy's missions for nuclear-related national security, energy, and environmental quality. The program provides world-class, peer-reviewed research results and operates user accelerator facilities in the scientific disciplines encompassed by the Nuclear Physics mission areas under the mandate provided in Public Law 95-91 that established the Department.

Nuclear science began by studying the structure and properties of atomic nuclei as assemblages of protons and neutrons. Research focused on nuclear reactions, the nature of radioactivity, and the synthesis of new isotopes and new elements heavier than uranium. Great benefit, especially to medicine, emerged from these efforts. But today, nuclear science is much more than this. Today, its reach extends from the quarks and gluons that form the substructure of the once-elementary protons and neutrons, to the most dramatic of cosmic events—supernovae. At its heart, nuclear physics attempts to understand the composition, structure, and properties of atomic nuclei. The field is driven by the following broad questions as stated recently by the Nuclear Sciences Advisory Committee in the Opportunities in Nuclear Science: A Long-Range Plan for the Next Decade.

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