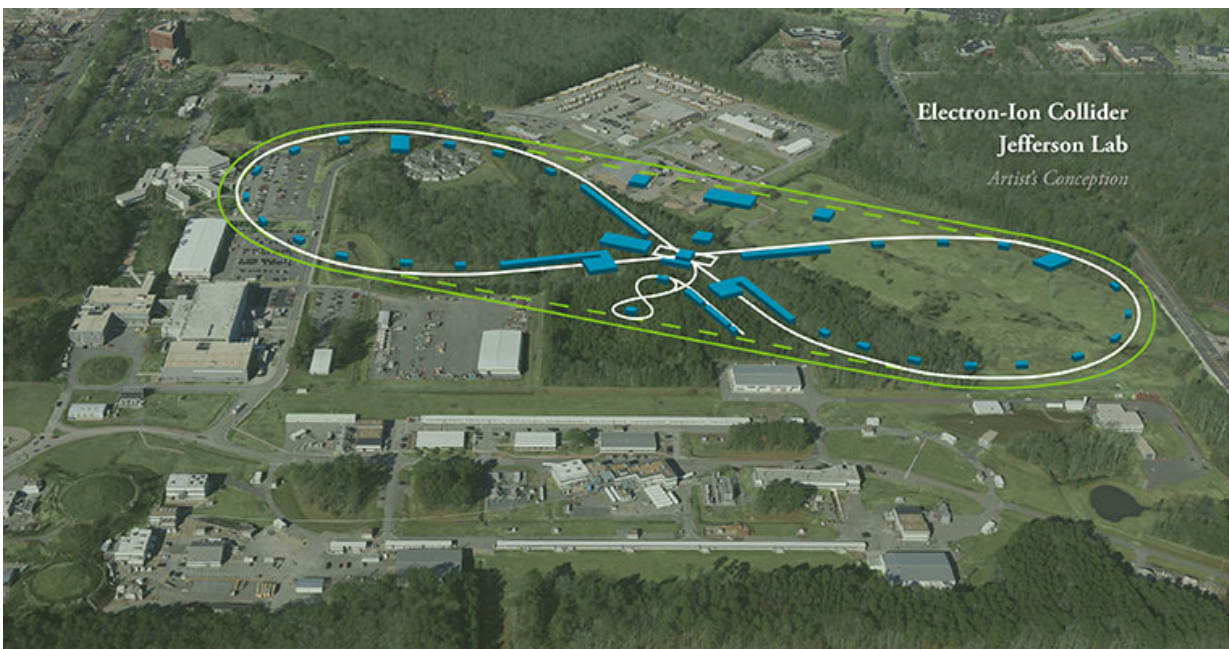


# Nuclear Science Advisory Committee issues plan for US nuclear physics research

October 16 2015

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Electron-Ion Collider - Jefferson Lab, Artist's Conception

Today, the Nuclear Science Advisory Committee, or NSAC, publicly released "Reaching for the Horizon, The 2015 Long Range Plan for Nuclear Science." The new plan was unanimously accepted by NSAC, a committee composed of eminent scientists who have been tasked by DOE and the National Science Foundation (NSF) to provide recommendations on future research in the field. A new plan, which serves as advice to both DOE and NSF, is generally prepared every five-

seven years to assure that priorities reflect the current knowledge in the field.

The top recommendation gives priority to capitalizing on prior investments, including executing the scientific program associated with the 12 GeV Upgrade of the Continuous Electron Beam Accelerator Facility at Thomas Jefferson National Accelerator Laboratory

In its first recommendation, the committee lists current investments that the field should capitalize on to exploit scientific opportunities.

Continuing the research program with Jefferson Lab's upgraded 12 GeV facility is a top priority. According to the recommendation, Jefferson Lab's "forefront program of using electrons to unfold the quark and gluon structure of hadrons and nuclei and to probe the Standard Model must be realized."

The laboratory and its user community of visiting scientists and students have 70 experiments already approved to run following commissioning activities.

The committee's first recommendation also recommended support to complete the construction of the Facility for Rare Isotope Beams (FRIB), for a targeted program of fundamental symmetries and neutrino research, and running the upgraded Relativistic Heavy Ion Collider, or RHIC, at Brookhaven National Lab.

In addition, the committee recommended development of an Electron-Ion Collider "as the highest priority for new facility construction following the completion of FRIB," with the aim of keeping the U.S. on the cutting edge of nuclear and accelerator science.

An Electron-Ion Collider would provide new capabilities in the study of Quantum Chromodynamics, the theory that describes how particles

called quarks and gluons build protons, neutrons and nuclei.

The other two major recommendations concern deploying "a U.S.-led ton-scale neutrinoless double beta decay experiment" and increasing investment in small- and mid-scale "projects and initiatives that enable forefront research at universities and laboratories." Jefferson Lab has been working to develop small- and mid-scale projects that are proposed to be implemented in the future at the CEBAF.

"Jefferson Lab looks forward to DOE and NSF adoption of the NSAC recommendations and to working with DOE in helping to implement the vision for nuclear physics in the coming years," said Robert McKeown, deputy director for science at Jefferson Lab and a Governor's Distinguished CEBAF Professor at the College of William & Mary.

**More information:** [science.energy.gov/np/nsac/](https://science.energy.gov/np/nsac/)

Provided by Thomas Jefferson National Accelerator Facility

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