



The High Intensity Future of Fermilab

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Fermilab's high intensity future is "Project-X" which is a US led initiative with strong international participation that aims to realize a next generation proton source that will dramatically extend the reach of Intensity Frontier research. The state of the art in Super-Conducting RF has advanced to a point where it can be considered and implemented as the core enabling technology for a next generation multi-megawatt proton source—reliably delivering unprecedented beam power at duty factors ranging from 0.001% to 100%. The base Super-Conducting RF technology also supports flexible beam-timing configurations among simultaneous experiments, allowing a broad range of experiments to develop and operate in parallel. The US Department Of Energy Office of High Energy Physics and its advisory bodies have recognized this potential and are supporting R&D for Project-X that could lead to a construction start as early as 2017.

Project-X will provide multi-megawatt proton beams from the Fermilab Main Injector over the energy range 60-120 GeV simultaneous with multi-megawatt protons beams 1-3 GeV (kinetic) with very flexible beam-timing characteristics as well as substantial beam power at 8 GeV. The Project-X research program includes world leading sensitivity in long-baseline and short-baseline neutrino experiments, a rich program of ultra-rare muon and kaon decays and opportunities for next-generation electric dipole moment experiments and other nuclear/particle physics probes that reach far beyond the Standard Model. The status and prospects of developing the accelerator complex and the research program will be presented.

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