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Project X: Intensity-Frontier Physics Based on ILC Technology

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Project X is a concept for a high-intensity proton accelerator facility exploiting technology developed for the International Linear Collider (ILC) in order to create opportunities for exciting discoveries in neutrino science and precision physics in case ILC construction is postponed significantly. Project X would couple a linear accelerator with the currently planned characteristics of the ILC with Fermilab's existing Recycler Ring and the Main Injector accelerator. The linac would utilize cryomodules, radio-frequency distribution, cryogenics, and instrumentation that are the same as or similar to those used in the ILC, at a scale of about one percent of the full ILC linac. Building the ILC-like linac of Project X would offer substantial support for ILC development by accelerating industrialization of ILC components in the U.S. and offering an early application of ILC superconducting technology. The intense proton beam of Project X would be used to create a number of high-intensity particle beams (neutrinos, muons, charged and neutral kaons, and anti-protons) that would enable a variety of precision experiments having unprecedented sensitivity to physics beyond the standard model. Project X would also provide a foundation at Fermilab for possible future accelerator facilities such as a neutrino factory or a muon collider. This presentation will preview both the concept for the Project X accelerator facility and the physics program that it would enable.