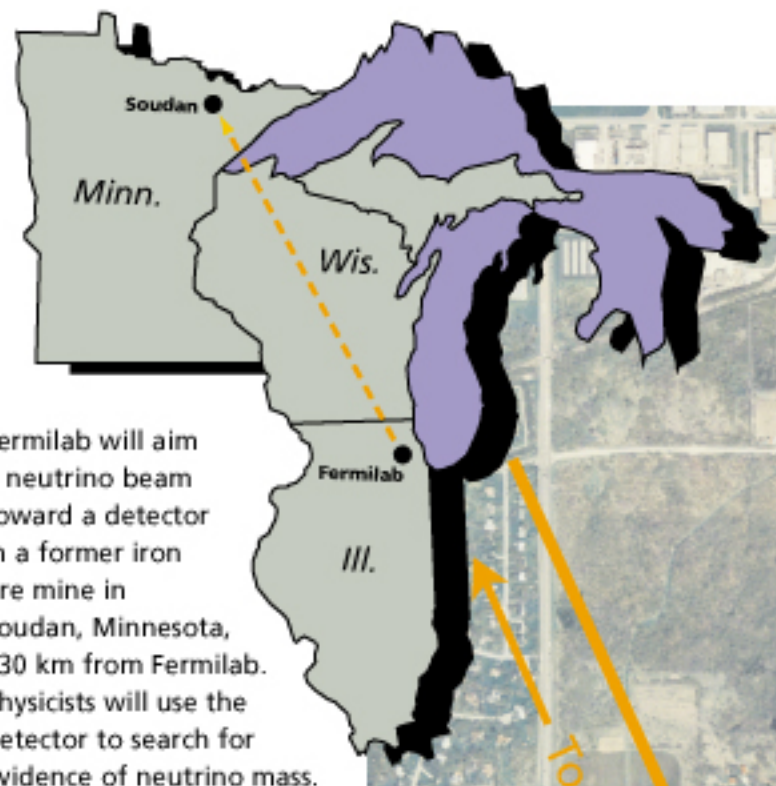




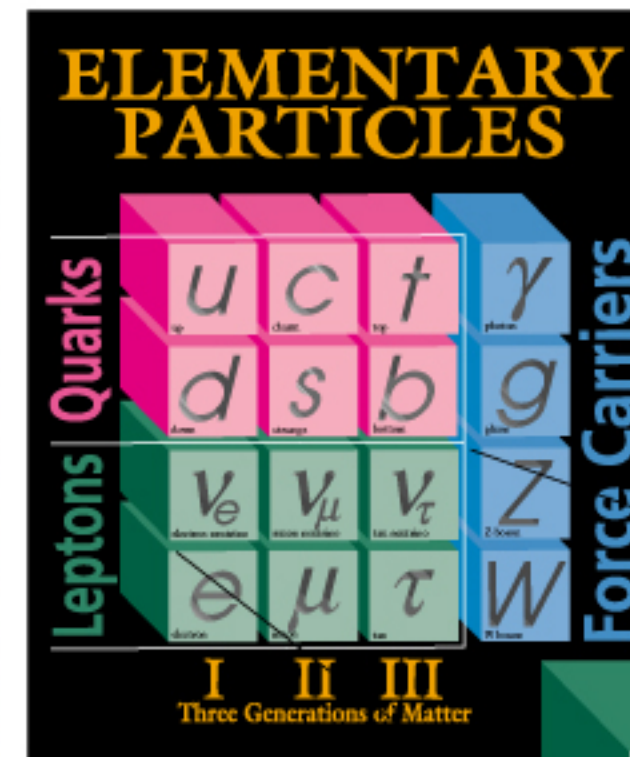
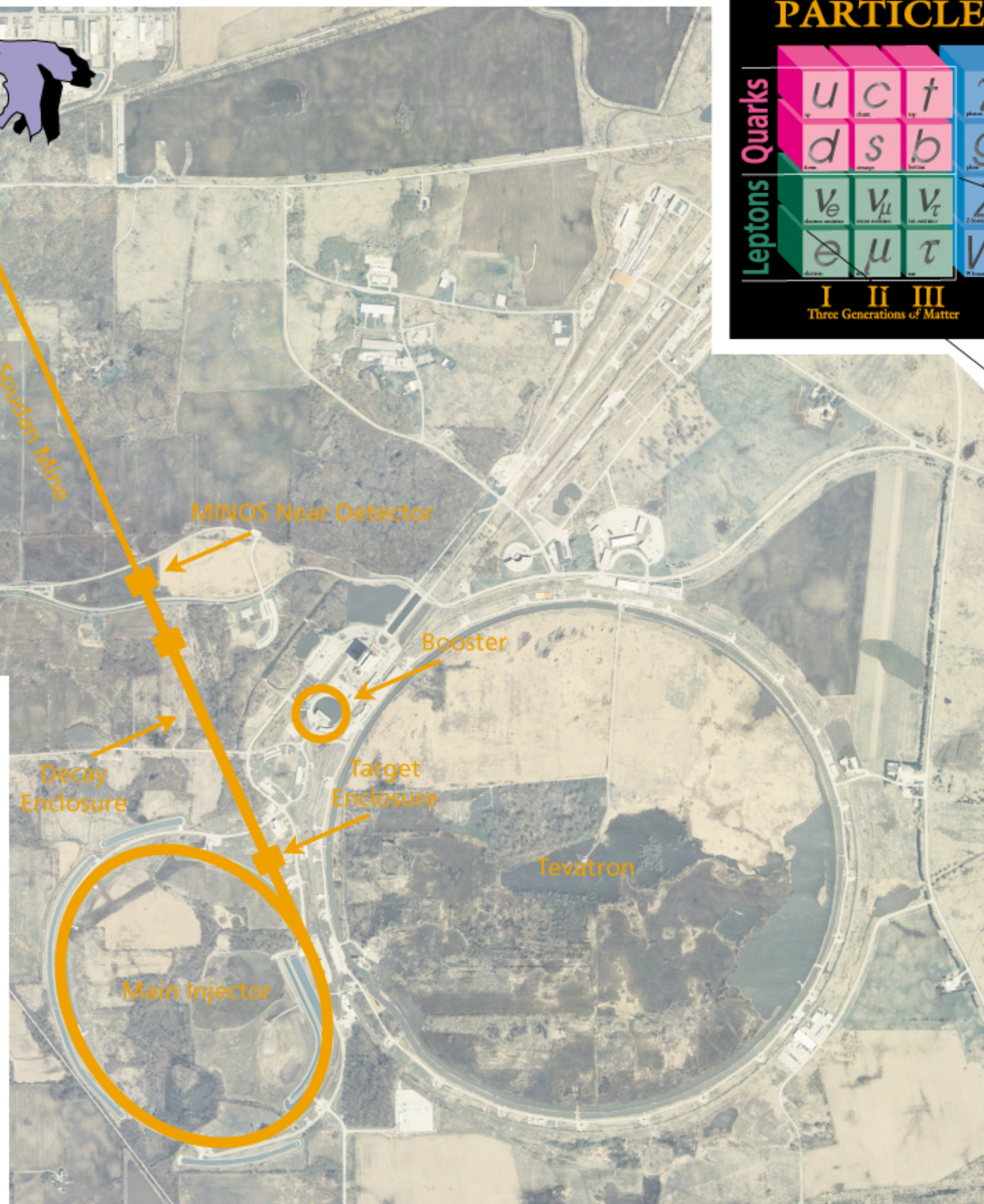
## Neutrino Physics at the Intensity Frontier

A new generation of neutrino experiments will use Fermilab's high intensity proton beams.

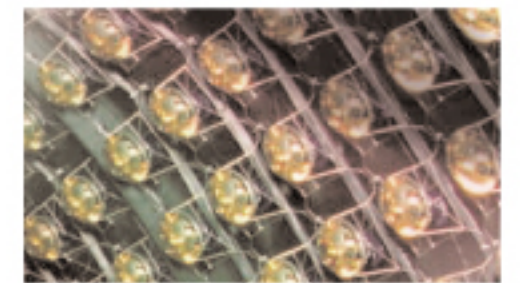
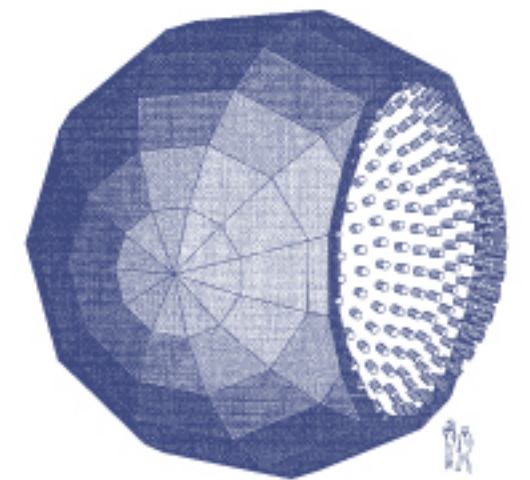


Fermilab will aim a neutrino beam toward a detector in a former iron ore mine in Soudan, Minnesota, 730 km from Fermilab. Physicists will use the detector to search for evidence of neutrino mass.

Members of the MINOS collaboration posed before a giant steel plate, the prototype of one "slice" of the 5,000-ton steel detector they will build in a cavern half a mile underground.



In the Standard Model the three neutrinos hold places as fundamental as the quarks and their lepton partners. Yet most of the neutrinos properties are known only by their limiting values. Fermilab's DONUT experiment seeks to observe the first tau neutrino interactions. Recent experimental results point to a small mass for neutrinos, previously thought to be massless.



For the MiniBooNE experiment, scientists are building a large detector (upper image), filled with mineral oil and covered with 1,220 phototubes (lower photo), to help determine whether neutrinos have mass.

