Remarks about "The Future"

1. Neutrino Physics is Exciting …
2. Neutrino Factories: The Way Forward
3. Accelerator R&D – The Key to the Future

Neutrino Physics is Exciting

•There is a real chance that a complete experimental knowledge of the properties of the neutrino will lead to a much deeper understanding of the underlying physics responsible for neutrino masses, & perhaps lead us towards an understanding of the relationship between quarks & leptons, & maybe even why there are 3 generations of quarks & leptons.

• Experimental measurements are already driving theory .. BUT we will need ambitious new beams and detectors, together with ambitious non-accelerator experiments, to obtain a complete experimental knowledge.

•The physics motivation is strong & as a community I think we should advocate the whole program ($0\nu\beta\beta$, Superbeams, Reactor Experiments, Neutrino Factories (R&D), Beta Beam (R&D), low energy muon experiments…). This is a multi-billion $ program - but its what is needed.

Neutrino Factories – The Way Forward

•There is a significant R&D effort devoted to Neutrino Factory development: MUCOOL, MICE, MERIT, International Scoping Study, …. These are international efforts. There is probably ~200 scientists and engineers participating.

•By 2010-2012 the first phase of the R&D should be complete. At this point we should have proven the technology, have a cost effective design, & a solid cost estimate … & it will be possible to make a decision to proceed towards construction via the final (pre-construction) R&D.

•To create an opportunity to proceed the neutrino community will have to effectively advocate the need for a Neutrino Factory.

Accelerator R&D: The Key to the Future

•The rate at which we can make experimental progress in accelerator-based particle physics is limited by the rate at which we can develop new accelerator concepts and technology

•It is widely acknowledged that we have been under-investing in accelerator science

•We need to increase our intellectual investment in accelerator development. Particles physicists can make significant contributions to accelerator science: Concepts and technology development.

•Both theorists and experimenters can contribute by investing a fraction of their time: Its fun (= intellectually challenging) and there is the possibility of making a big impact on our field.

Finally

NEUTRINO PHYSICS IS EXCITING