

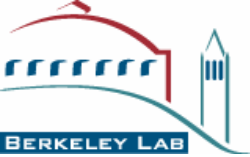


International Scoping Study Accelerator Working Group:

Workshop Tasks and Plans

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ISS Workshop-BNL
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Introduction



- This marks the first time the ISS Accelerator Group has held a workshop
 - welcome to all of you who have come to help us in this task
 - please continue to encourage your colleagues to join the effort
- We have a proposed task list to “seed” the workshop
 - modifications should be proposed and agreed to by the end of the day at the latest
- We will meet together *in this room* once per day to discuss progress and issues
 - propose \approx 5 p.m. for this meeting
 - do people prefer 9:00 a.m. instead (or in addition)?

Proposed List of Topics (1)

- **Proton Driver**

- develop comparison table for different schemes
- identify issues for producing short (~ 1 ns) bunches, e.g., define parameters for suitable bunch compression ring or transport line

- **Targetry**

- choice of proton beam energy for optimal pion production (and capture)
- assess minimum acceptable proton beam repetition rate at 4 MW intensity (solid and liquid targets)
- develop realistic solid-target scenario (rod, band, pellets, or granular)

- **Front End**

- begin simulating lowest energy KEK FFAG ring
- study trade-off of cooling versus accelerator acceptance

Proposed List of Topics (2)

- **Acceleration**

- look at FFAF longitudinal dynamics with non-zero transverse amplitude
- begin simulating higher energy (1-3, 3-10, 10-20 GeV/c) KEK FFAF rings

- **Storage Ring**

- compare 20 GeV solution (upgradeable) and 50+20 GeV solutions
- develop isosceles triangle ring with $\sim 40^\circ$ apex angle
- begin tracking 50+20 and isosceles triangle ring *with errors*



Accelerator WG Organization



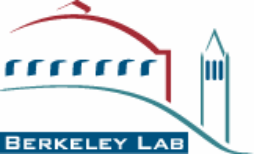
- Accelerator study program managed by “Machine Council”
 - R. Fernow, R. Garoby, Y. Mori, R. Palmer, C. Prior, M. Zisman
- Aided by Task Coordinators
 - Proton Driver: R. Garoby, H. Kirk, Y. Mori, C. Prior
 - Target/Capture: J. Lettry, K. McDonald
 - Phase Rotation/Bunching/Cooling: R. Fernow, K. Yoshimura
 - Acceleration: S. Berg, Y. Mori, C. Prior
 - Storage Ring: C. Johnstone, G. Rees
- All these people serve as “assistant pests”
 - recruiting people to help
 - assigning and coordinating tasks
 - we could not hope to succeed if this were a “one person show”

Accelerator Study Phase 1

- Study alternative configurations; arrive at baseline specifications for a system to pursue
 - examine both cooling and no-cooling options
- Develop and validate tools for end-to-end simulations of alternative facility concepts
 - correlations in beam and details of distributions have significant effect on transmission at interfaces (muons have “memory”)
 - simulation effort will tie all aspects together
- Goal is to complete this work within 6 months
 - then reach consensus on which option(s) to pursue further
- Making choices requires (“top-down”) cost evaluation
 - ISS will require engineering resources knowledgeable in accelerator and detector design

Accelerator Study Phase 2

- Focus on selected option(s)
 - as prelude to subsequent World Design Study
 - WDS will have more of an engineering aspect than the ISS
- Must develop R&D list as we proceed
 - identify activities that must be accomplished to develop confidence in the community that we have arrived at a design that is:
 - credible
 - cost-effective
 - until construction starts, R&D is what keeps the effort alive



Future Workshops



- The next ISS plenary meeting is at KEK, from January 23-25, 2006
- We plan to meet both before and after the plenary meeting
 - Sunday, January 22, 2006
 - discussion of results to be presented at plenary meeting and planning for parallel sessions
 - Wednesday afternoon, January 25, 2006 through Friday, January 27, 2006 (mid-day)
 - workshop to continue on detailed activities (follow-on to this meeting)
- Will consider a similar approach in April 2006 (RAL)

Summary

- Challenge is to try to reach consensus on a single optimized Neutrino Factory scheme
- Even if we don't quite succeed in selecting a single design, whatever convergence we attain will improve the probability of having a future international facility
- Developing optimal design requires an adequately-funded accelerator R&D program
 - we need to articulate this need and define the ingredients of the program