FFAG DISCUSSION

1. General FFAG aspects
2. High-intensity proton drivers
3. Muon accelerators
4. Muon cooling
5. Electron model
6. Technical considerations
7. Public relations, politics, funding
8. Comments on next workshop

Goals of Discussion

- To determine, in a very broad way, what is important for us to be doing.
- Much activity will be on the details of code development, but we need to discuss what is important (not just what is easy to do).
- Some activity will be on concept development. Where do we need new approaches?
- Some activity will be on fleshing out designs. Which designs and what (and who) are needed to do the fleshing?

Let us try, through the morning, to keep these goals in mind.

General FFAG Aspects

Further exploration of intermediate range between scaling (fixed tune, but non-linear fields) and non-scaling (variable tune, but linear fields)?

I consider this important.

Can the tune be fixed (no resonance crossing and can choose a good working point) and yet the aperture remain modest?

Dynamic aperture studies.

I consider this important.

How serious are resonance crossings? (Machida)

General FFAG Aspects (Cont)

More analytic work following that of Johnstone, Craddock, and Koscielniak? If so, what?
Further use of the analytic work?

High-Intensity Proton Drivers

One design by the BNL folk: Ruggiero talk
What further work is needed? (Fixed tunes? Optimize costs?) Space charge limits? Powerful rf is needed; how is it to be achieved?

I consider this important.

Designs for other purposes? (Such as a spallation source or a waste burning device.)

I consider this important.

Muon Accelerators

More lattice work to fix on a design?
Designs by Johnstone, Trbojevic, Keil, et al
If so, what do we optimize? Has enough been done on lattices and should we be doing other things?

What criteria for selecting a lattice?

My view is we can now move on.

Muon Cooling

Heard one talk by Garren. More work or not interesting?

Electron Model

More lattice work beyond that of Keil, Berg, Johnstone, Koscielniak, Trobojevic?
What are we really modeling?
Various small ring effects (Fringe fields, etc)
Permanent magnets vs. electric magnets
Alignment issues
Injection
Diagnostics
Engineering design
Cost estimates

My view is this is where the action is (or rather should be). We need to push this.

Technical Considerations

Injection and extraction: Palmer talk

Magnet design (Edge effects, etc)

Alignment issues

Room temperature vs. superconducting RF

Costing: Changes to Scott's code?
Better costing input formulas?
Apply to scaling designs of KEK?

What can be learned from PRISM? (Kuno talk)

I would propose that our efforts should move into this area (rather than more lattice work.)
Different players are needed. How do we get them involved?

Public Relations, Politics, Funding

More communication to cyclotron, spallation neutron source, proton driver, waste treatment, accelerator-driven reactor communities, medical communities?
(Talks, papers; technical and also “popular”)
Seek support for a model? (If so, is a ZDR required and, if so, who will do it?

Modest effort along these lines seems valuable.

Comments on Next Workshop

Remarks by the KEK folk

Goals?

Should a wider community be asked to partake?

Talks arranged at the Cyclotron Conference:
Mori: Scaling Machines
Berg: Lattice Optimization for Non-Scaling
Koscielniak: Bucket-less acceleration