



Magnet Cost Issues

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How do we proceed?

- Organize existing data
- Develop standardized database/WBS structure
 - Sufficiently subdivided for relative comparisons of component costs
 - Supply the right hooks for scaling – one of the more difficult challenges
 - Extreme detail not required initially
 - Must evolve according to our needs
- Start with RHIC and/or LHC costs as reference



What do we need?

Requirements evolve with time

- Phase I Guideline for R&D
- Phase II Technology choice – bring in machine specific influences
- Phase III Final project cost



What do we need? (cont'd)

Separation between Phase I and Phase II is fuzzy

- We will eventually need input from accelerator designers and subsystem experts (cryo, controls, etc.)

Must develop a strong, interactive relationship



Where do we draw the line?

- To start – determine the magnet/machine interface and draw the line as close as possible to the magnet

Eventually though -

- Direct comparisons between competing technology choices will necessitate detailed knowledge of the machine characteristics and requirements
 - e.g. tunnel/length, field, injection energy, field quality, site location, logistics, infrastructure, political reality, etc



But, for now

- Identify cost drivers and scalable parameters (basic structure)
 - Conductor, field, bore size, length, etc.
 - Field quality? Can we define a minimum requirement?
- Look at cost distributions
 - Where does all the money go?

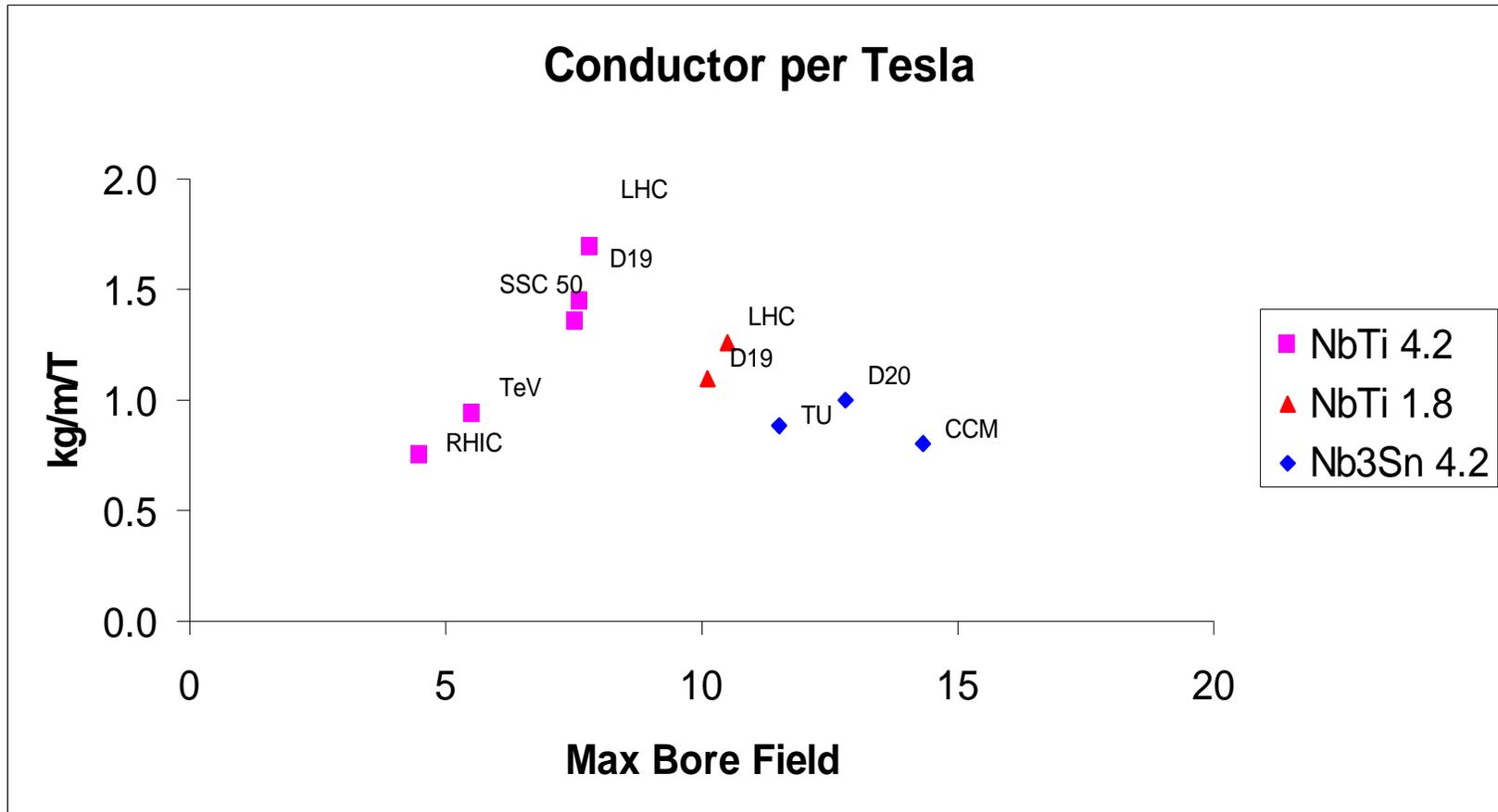


Other Questions

- How do we include intangible factors?
 - Reliability, fabrication risk
- What is the “field” of a magnet?
 - Short sample, operating (margin)?
 - Needs to be defined in a consistent way.

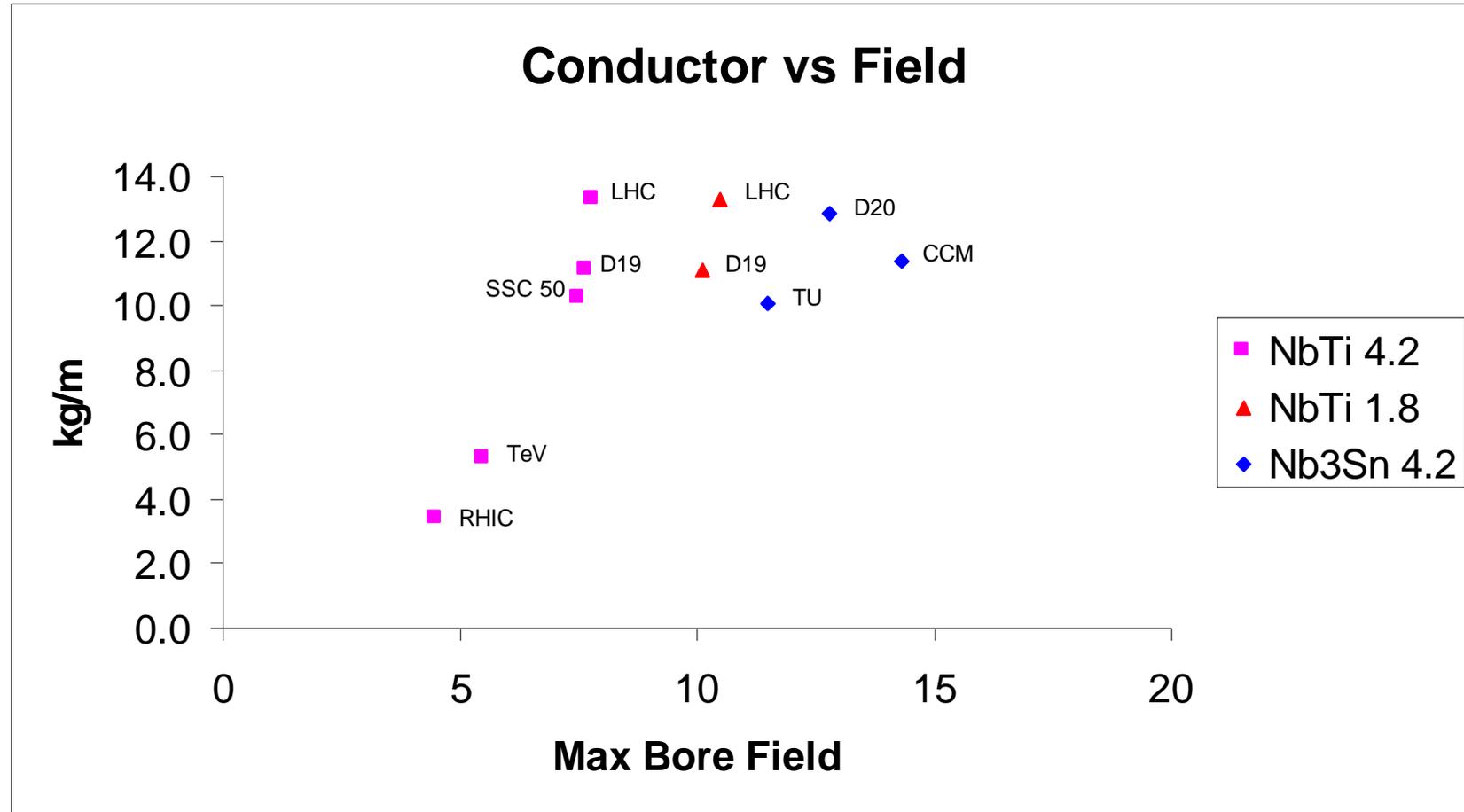


- The maturity and eventual viability of any of the new or existing magnet technologies (beyond SSC or LHC) requires focusing resources and money on some particular aspect(s) of the proposed design
 - Reduce overall cost, increase reliability, etc.
- A dependable and coherent cost model can help determine where best to direct the effort





Conductor vs Field





Magnet Cost Distribution

