

Possible US contributions to FCC (somewhat DOE-Lab centric view)

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W. Barletta (MIT), M. Syphers (MSU)

with input from:

V. Shiltsev (FNAL),

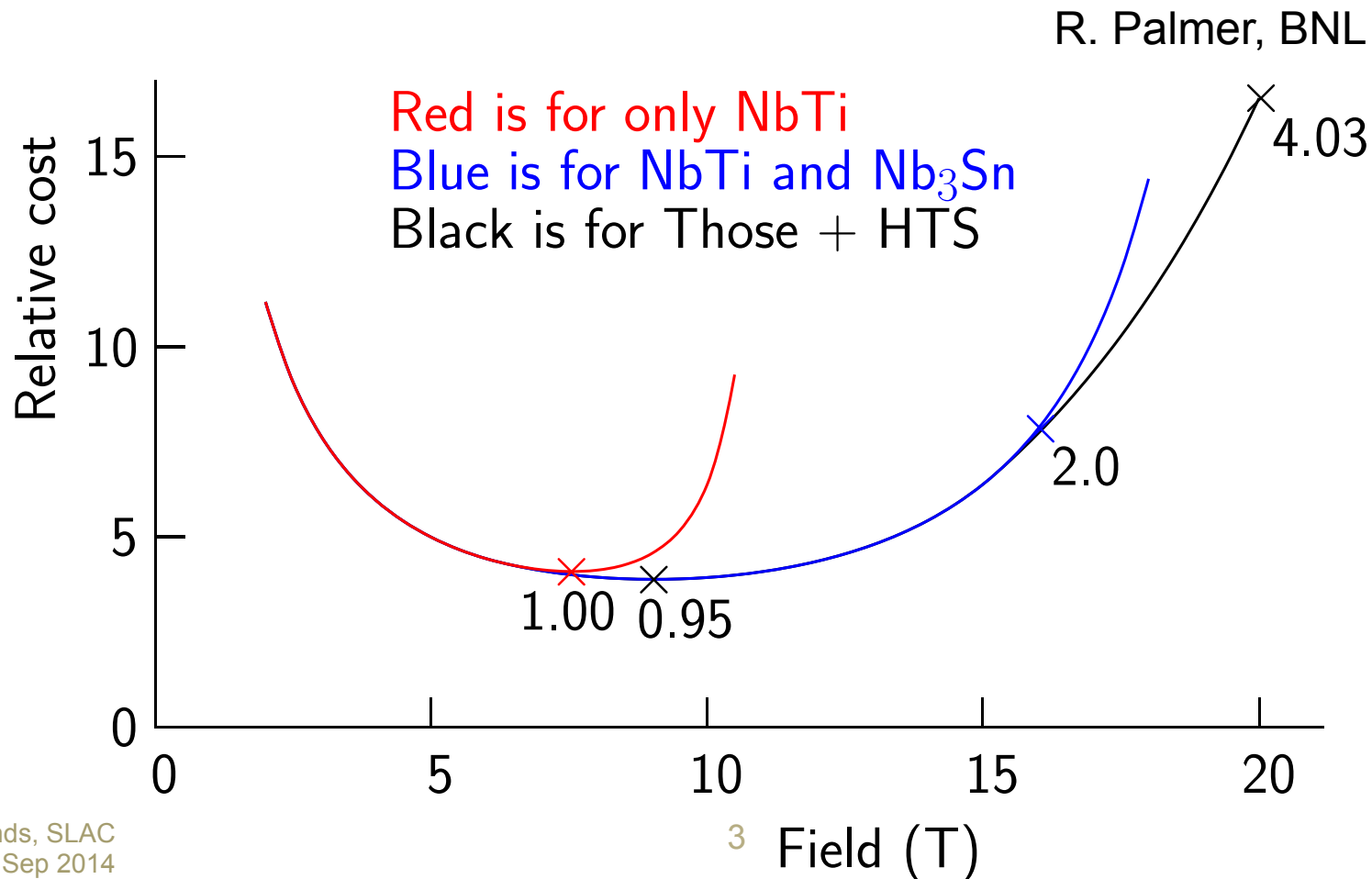
R. Palmer (BNL).

Intro: The DOE Decision-making process

- ❖ DOE-Office of High Energy Physics (OHEP) sponsors strategic accelerator research.
 - ≈\$40 M annual budget portfolio (GARD)
 - HEP Advisory Panel (HEPAP) advises director of OHEP.
- ❖ Particle Physics Projects Prioritization Panel (“P5”)
 - advises HEPAP.
 - Prioritizes projects given certain funding scenarios.
 - Report public
- ❖ Accelerator-R&D sub-panel to HEPAP
 - Advise on alignment of the ARD program with the P5 recommendations.
 - Road trip to ANL, BNL, FNAL, LBNL and SLAC in August-2014.
 - Input re FCC from V. Shiltsev (FNAL), R. Palmer (BNL), G. Apollinari (LARP), UW (SLAC)

R&D on Magnets

- ❖ World-leading expertise in US esp. in Nb₃Sn, strong synergy with LARP, Hi-Lumi LHC
- direct relation to cost optimization, size etc.



Other Areas of Interest (not exclusive list)

- ❖ S.R. loss will be significant and may need dedicated R&D
 - Cornell may be in a position to do study/expt.
 - Open mid-plane dipoles?? (BNL)
- ❖ Rf system efficiency improvements:
 - Direct synergy with LCLS II work (SLAC-FNAL-JLab-LBNL)
- ❖ Design R&D can tap into vast experience in National Labs
 - true for both FCC-hh and FCC-ee
- ❖ Build on the VLHC study (FNAL 2001)
 - had a e^+e^- component as well (VLLC)
- ❖ Let's not forget the Universities
 - Cornell, MSU, SUNY, ...

MOU (by DOE Labs)?

- ❖ MOU signing and true commitments (by DOE labs) pending report of Accelerator R&D sub-panel
 - Preliminary (oral) by December; final report spring 2015.
 - A number of sub-panel members favor a formal connection to FCC

- ❖ Design and R&D will be in P5's "small projects portfolio"
 - Portfolio recommended even in "Scenario A"
 - part of GARD, across all labs
 - "leverage" physicists to make this effective.

- ❖ Magnets should be an important contribution.

Possible Near-Term Effort (UW view)

- ❖ FCC-hh and FCC-ee coordination (is starting)
 - Syphers (MSU), Wienands (SLAC)
- ❖ FCC-ee design work
 - Cai et al. (SLAC), Wittmer (MSU)
- ❖ Getting started on FCC-ee instabilities and impedance
 - Stupakov, Novokhatski et al. (SLAC)
- ❖ Considering putting in a proposal to DOE to make specific funding available.