

A Report to HEPAP

on the

Superconducting Radiofrequency R&D

Workshop

David F. Sutter

September 30, 2003

Embassy Suites Hotel, Washington D.C.

A Joint Agency Workshop

The Sponsors:

DOE (Robin Staffin, Convener)

**Office of Basic energy Sciences
Office of High Energy Physics
Office of Nuclear Physics**

NSF (Joe Dehmer, Convener)

**Elementary Particle Physics
Nuclear Physics**

The Organizing Committee:

Dave Sutter, Chair	HEP, DOE
Marvin Goldberg	EPP, NSF
Gene Henry	NP, DOE
Brad Keister	NP, NSF
Marsha Marsden, Arrangements	HEP, DOE
Pedro Montano	BES, DOE
Bill Oosterhuis	BES, DOE
Jehanne Simon-Gillo	NP, DOE
Bruce Strauss	HEP, DOE

The Workshop was “By invitation only.”

**The Doe and the NSF would like to thank
the following institutions for their willingness
to come to Bethesda and present
their R&D programs:**

**Argonne National Laboratory
Cornell University
Fermi National Accelerator Laboratory
Michigan State University
Los Alamos National Laboratory
Oak Ridge National Laboratory
Thomas Jefferson National Laboratory**

The goal that we set for the workshop was

- § To gain a clear understanding of the current status of R&D in RF superconductivity in place under DOE and NSF sponsorship.
- § To gain a knowledge of the current frontiers of the R&D in RF superconductivity.
- § To gain an understanding of collaborations in place, both national and international, to carry forward cutting edge R&D in RF superconductivity.
- § To gain a picture of where the collective of DOE and NSF sponsored programs in RF superconductivity is headed in the next 3 – 5 years.

Some Results:

- **Feedback from the participants is very positive!**
- **Attendees: ~ 60**
- **Vugraphs of Talks:**
 - CD- Rom delivered to all participants the week after the workshop
- **Formal Report and Written Summary of the R&D**
 - Tutorial paper on rf Superconductivity by Hasan Padamsee
 - 2 to 4 page summaries of the rf Superconductivity programs by participating institutions
 - Scheduled for delivery in October 2003

DOE & NSF
Workshop on RF Superconductivity
Agenda
Tuesday, July 29, 2003

- DOE-Welcome ~ ***S. Peter Rosen***
- Cornell University - Overview Tutorial of RF Superconductivity ~ ***Hasan Padamsee***
- ANL - Progress in the Development of RF Accelerators at Argonne ~ ***Ken Shepard***
- Cornell University - The R&D Program in RF Superconductivity at Cornell ~ ***Maury Tigner***
- FERMI - RF Superconductivity at Fermilab-An Overview ~ ***Steve Holmes***
- FERMI - Accelerator R&D at the AØ Photoinjector ~ ***Helen Edwards***
- FERMI - CKM Cavity Development and the Connection to the Cold Linear Collider ~ ***Leo Bellantoni***
- FERMI - An SC RF Linac Based Proton Driver ~ ***Bill Foster***
- MSU - SC RF Educational and Research Activities at MSU ~ ***Terry Grimm***
- ORNL - Superconductivity and its Applications at ORNL/SNS ~ ***Marion White***
- JLAB - Key Technical Issues in RF SC and the Derived R&D at TJNAF ~***Swapan Chattopadhyay***
- JLAB - Advancing the State of the ART – SC RF R&D at JLAB & its Application to the 12 GeV Upgrade, RIA, SNS, & Energy Recovery LINACS ~ ***Warren Funk***
- LANL - LANSCE Efforts Toward RF SC Cavity Development ~ ***Andrew Jason***
- LANL - SC RF Power and Control Systems ~ ***Tsuyoshi Tajima***
- LANL - Microwave Properties of Superconducting MgB2 ~ ***Alp Findikoglu***

Where to from Here?

- § **The DOE and the NSF do not see this workshop as an end in itself.**
 - ~ **We do anticipate future workshops!**
 - ~ **We do anticipate addressing other topics relevant to RF superconductivity.**
- § **So we have the questions:**
 - ~ **What should be the focus of the next workshop?**
 - ~ **When would the next workshop be timely?**

And the Answer is

- **A workshop on the fundamental physics and metallurgy of RF Superconductivity with respect to the factors affecting limits on the RF fields and therefore on accelerating gradients.**
- **The date of the workshop to be tentatively in January or February 2004.**
- **The venue to be again in the Washington D.C. area unless we are persuaded of a more advantageous place.**
- **This is a work in early progress, so stay tuned!**

Attendees at DOE NSF Workshop on Superconductivity

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