



***The Air Force Office of Scientific Research
Proudly Presents***

***Coated Conductor Workshop: Solutions to
Fundamental Problems That Will Lead to
Commercialization***



***29-31 July 2004
Hilltop House Hotel
Harper's Ferry, West Virginia***

July 12, 2004

Dear Colleagues:

Recent discussions among many of us in the field have led to the conclusion that it would be extremely useful and timely to hold a small workshop of leaders in the field to consider the state of basic research in support of the coated conductor technology. In particular, the goal would be elucidate what activities are required by those of us representing the basic science community in order to help those on the engineering end of the spectrum overcome the remaining roadblocks to producing long lengths of cost-effective uniform, high-current-carrying (2G) coated conductor. There is fear of sorts that by touting the recent industrial successes of industry it will be falsely assumed that the needed incremental improvements will happen as a matter of course. Those of us in the field know that this is not the case. Hence, there is need for a strategic assessment.

The proposed workshop has the enthusiastic support of Harold Weinstock at the Air Force Office of Scientific Research (AFOSR) and Jim Daley at the Department of Energy (DoE), both of whom will be attending. AFOSR will sponsor the meeting. It will be held just after the DoE Peer Review on Friday and Saturday, 30 and 31 July 30 at the Hilltop House in Harpers Ferry, West Virginia. The venue is reported to be charming and inexpensive with wonderful views of the confluence of the Shenandoah and Potomac Rivers. We can take modest breaks in our schedule to visit the historic sections down the hill and even hike a small segment of the Appalachian Trail. It should be conducive of the informal, highly interactive meeting that is needed. Logistically, Harpers Ferry is quite easy to get to, with Amtrak and MARC trains reaching there in just an hour from Union Station in Washington, D.C.

We hope that you will be able to participate in this important meeting. Details of the program are attached.

Sincerely

David Larbalestier and Mac Beasley

Draft Agenda

Workshop Purpose and Scope

In June 2003, the AFOSR-MURI on Fundamental Science of Coated Conductors ran a workshop in Madison WI to discuss the fundamental challenges that face the successful development and production of coated conductors (CC). A summary document from the meeting was produced and widely circulated and later presented at the Road Mapping Workshop held after the DOE Peer Review in July 2003. Since July 2003 great industrial success has been achieved in scaling up CC to continuous processes with attractive properties, but production at current 1G levels is still several years away. Many choices still face those charged with scale up, even as various pressures for moving rapidly towards production suggest that R&D can begin to be cut.

The central message from our June meeting was:

Coated conductors with attractive properties are being made by continuous processes now, BUT only long term work on developing a fundamental understanding of their processing, their properties and their inter-relations will ensure that Coated Conductors can enter the commercial market place with the low price/performance properties needed to replace copper and iron in electro-technology.

The charge of our July 2004 workshop is to consider our June 2003 conclusions, to update them and to define what other documents and actions would be helpful in securing a healthy research activity in support of the emerging coated conductor technology.

The program as of Monday July 12 is presented below. Our goal at the workshop is not to be technically exhaustive but to get the important technical issues that stand in the way of practical CC out into discussion. This is why Session III is entitled – “What we don’t know but need to”.

We ask the designated speakers to summarize their points quite briefly, taking 10 minutes or less. We do not need lots of technical detail because there are many experts present – what we need is to make sure that the important issues are clearly discussed. We plan discussion after each talk and at the end of each session. Mac Beasley and David Larbalestier will act as rapporteurs. We urge you to read the power point report from the last MURI workshop in June 2003 and leverage off it – in agreement or disagreement. We aim to conclude the workshop with an update and rewrite of this that encapsulates our present range of views on what long term R&D is needed for success in making CC available for HTS applications.

Workshop Organization

Friday, July 30

8:30 Introduction and Statement of Goals -- Larbalestier

Session I -- User Challenges of Coated Conductors (Chair: Larbalestier)

8:45 View from DoE – Jim Daley

9:05 View from AF – Paul Barnes

9:25 View from Navy – Don Gubser

9:45 Break

10:15 View from Industry – John Scudiere

10:35 View from Industry – Selva Selvamanickam

10:55 View from Electric Power Industry as a Whole – Paul Grant

11:15 Discussion

12:15 Lunch and Informal Activities in Harper's Ferry

Session II – What We Don't Know But Need To (Chair: Beasley)

3:00 Templates IBAD –speaker to be determined – we lack the right LANL person I think

3:20 Templates RABITS – Goyal

3:40 Buffers – Clem, Cima

4:20 YBCO Layers – Feenstra, Driscoll

5:00 YBCO Flux pinning – Civale

5:20 Break

5:50 AC Losses – Sumption

6:10 Conductor Design and Stability – Schwartz

6:30 Conductor cost trends – Cooley

6:50 Discussion

7:30 Break for Dinner

Saturday, July 31

Session III – Report/Document Definition

8:30 Formation and Charge to Breakout Groups – Larbalestier and Beasley

8:45 Working Time for Breakout Groups

10:15 Break

10:45 Reports of Breakout Groups

11:30 Discussion of Needed Documents and Follow Up Actions

12:30 Lunch

Session IV – Report/Document Planning and Preparation

3:00 Working Groups on Follow Up (Management and Available Participants)

General Information

Meeting Location

The Hilltop House Hotel
400 East Ridge Street
Harper's Ferry, WV
304-535-2132

Experience the best of the history, excitement and soul-wrenching grandeur of West Virginia. Come to Hilltop House. The Hilltop House is a stately, century old stone inn, majestically situated on a mountaintop, overlooking the village of Harpers Ferry, settled in 1733, right around the time many of this country's founding fathers were born. One of those founding fathers, Thomas Jefferson, during a visit to Harpers Ferry in 1783, noted the view of the meeting of the Potomac and the Shenandoah Rivers and the encircling mountains, in his journal as "one of the most stupendous scenes in nature." It is.

Since the 1700's, Harpers Ferry has beckoned seekers of beauty and solitude, to a warm bed and repair for the weary spirit. Over the years, Hilltop House has graciously provided those needs to such people as Alexander Graham Bell, Mark Twain, Pearl S. Buck, and played frequent host to President Woodrow Wilson.

Registration

The cost of registration including lodging is **\$175.00** and includes some meals. **Deadline for Registration is 16 July 2004.** Register on line at www.afosr.af.mil or by filling out the registration form below. Fax registration to 703-696-5233. Registrants please pay by **16 July 2004** with cash, check or credit card (Visa, MasterCard, Discover)* to mail a check. Please make checks payable to: AFOSR Protocol.

AFOSR/PIC
4015 Wilson Blvd., Room 713
Arlington, VA 22203-1977

Audio Visual

AFOSR will provide a computer with a LCD projector, overhead projector, and an audio-visual professional will be on-site. To ensure that all briefings are compatible, please contact Ms Debbie Axson at 703-696-7305 or e-mail Debbie.axson@afosr.af.mil by 16 July 2004.

Lodging

A limited number of rooms have been blocked at the Hilltop House Hotel. Please make reservation on or before **16 July 2004**.

Meals

Meeting meals will consist of one evening reception, two complete breakfasts, two lunches, four breaks, and two dinners. For special dietary needs, please contact Mr. Raymond Herrera at 703-696-7317.

Meeting Attire

Business casual for all attendees, ties discouraged.

Emergency Contact Phone Number

In case of an emergency, people can contact cellular phones that will be manned by AFOSR Protocol at 703-989-0174.

Transportation Information

The nearest airports to Harper's Ferry are Reagan Washington National Airport (DCA) Dulles International (IAD) and Baltimore-Washington International (BWI)

Train

Harper's Ferry is serviced by AMTRAK and MARC. The station is approximately four blocks from the hotel, uphill.

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AFOSR/PIC
4015 Wilson Blvd., Room 713
Arlington, VA 22203-1954

** A refund requires a 72 hour notification (3 business days) prior to 26 July 04*



Air Force
Research Laboratory
AFRL

REGISTRATION FORM

Coated Conductor Workshop: Solutions to Fundamental Problems That Will Lead to Commercialization

29-31 July 2004

Registration Due by 11 July 2003

Please fill out registration form on-line at www.afosr.af.mil

Or fax to

Attn: AFOSR Protocol 703-696-5233

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Please circle appropriate card **Visa, MasterCard, Discover**

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Date of Expiration _____

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Signature _____

Section 552a of Title 5, U.S. C., authorizes collection of this information. The primary use of this information is by management. Furnishing the social security number as well as other privacy act data is voluntary; however, failure to do so may delay or prevent action.