FOREWORD

On behalf of the Beam Instrumentation Workshop Program Committee, I am pleased to welcome you to sunny Santa Fe, New Mexico, for the 14th meeting of the Beam Instrumentation Workshop (BIW10). Sponsored by Los Alamos National Laboratory (LANL), this workshop is dedicated to exploring the physics and engineering challenges of beam diagnostic and measurement techniques for charged particle accelerators. The workshops' features include plenary and poster sessions, tutorials, vendor exhibits, multiple opportunities for informal discussions and collaborations, and the 2010 Faraday Cup Award winner presentation.

Some of the continued attributes of the workshop are its small size and continued use of the Web. Furthermore, the BIW10 continues to offer a program that has no parallel sessions so that all of its attendees may observe and interact with all fellow participants. This year, BIW10 has enhanced its relationship with the Joint Accelerator Conference Website (JACoW) by publishing its proceedings only on the JACoW site (http://accelconf.web.cern.ch). Finally, BIW10 continues the tradition established at BIW08 of providing students an opportunity to interact with workshop attendees.

Two new and important events have been added to this year's meeting:

- Expanded opportunities for vendor/attendee interaction through the presentation of Vendor Technical Orals and enhanced vendor participation.
- Technical Question and Answer period during Tuesday's working lunch.

With these new initiatives, the Program Committee hopes to boost the interest in the field of beam diagnostics instrumentation.

The organization of BIW10 has been made possible thanks to the generous support LANL's Engineering and Engineering Sciences Directorate and the Accelerator Operations and Technology Division, and the participants and vendors attending the BIW10.

A special "Thank You" must also be expressed to members of the Local Organizing Committee whose enthusiastic and outstanding efforts made BIW10 a reality.

J. Douglas Gilpatrick
BIW10 Program Committee Chairman
May 2010

Editor's Note: Full video of the tutorial orals may be found on the conference website, http://www.lanl.gov/conferences /biw10
Slides for the tutorials and most other orals are available through JACoW.

DEDICATION

Gary Smith
April 5, 1939–July 16, 2009

Gary Smith and family

The BIW Committee mourns the loss of one of its members, Gary Smith. Gary started at Brookhaven National Lab (BNL) in March 1965 and retired in June 2003.

During his tenure at BNL, he was a highly regarded engineer working on beam instrumentation. Early in his career, he worked on bubble chamber instrumentation, as well as other complex pieces of equipment, such as the horn power supply. In addition, Gary was the supervisor of the "Beamology" Group in the mid 1970s. He participated on the development of systems for AGS, Booster, RHIC, and the Spallation Neutron Source. Gary joined the BIW Committee in the early '90s and co-chaired the 2002 workshop.

Gary was a ham radio operator and enjoyed crossword puzzles and teaching his friends to ski. He liked to backpack and enjoyed taking trips to Rangeley Maine with his wife. Gary is survived by his wife, Rose; children Todd, Beth, and Jennifer; and three grandchildren. He is missed by us all...

FARADAY CUP AWARD

The Faraday Cup Award is intended to recognize and encourage innovative achievements in the field of particle accelerator beam instrumentation. It is donated by Bergoz Instrumentation, of Saint-Genis-Pouilly, France. The award consists of a certificate and $5000.00 (U.S.). These are presented every other year at the Beam Instrumentation Workshop (BIW), whose Program Committee is solely responsible for the selection of the recipient.

History

The Beam Instrumentation Workshop (BIW) was started to provide a forum for indepth discussions of techniques for measuring charged-particle beams produced in high-energy accelerators. In the past, the large U.S. and European Particle Accelerator Conferences dedicated only a few sessions to instrumentation, thus making it difficult to have significant interaction among others in the field. It became apparent to Dick Witkover at Brookhaven National Laboratory (BNL) that a conference or workshop dedicated to instrumentation was needed. After meetings with representatives from the other national labs across the U.S., the first Accelerator Instrumentation Workshop was held at BNL in 1989. During the last day roundtable discussion, the idea for the Faraday Cup Award was born as a means of encouraging young engineers and physicists to become more innovative. Discussions between Bergoz and the Organizing Committee continued through the next Beam Instrumentation Workshop (as it was now called) at Fermi National Accelerator Laboratory in 1990 with a final agreement on how to keep the Award fair and noncommercial reached in 1991. The procedures for selecting the winner were written primarily by Bob Shafer soon after, and they have remained virtually unchanged since then. The clever name of the Award, referring to both a trophy and a measurement device, is attributed to Bob Webber.

Selection Criteria

The Faraday Cup Award is presented to those who have made outstanding contributions to the development of innovative beam diagnostic instruments of proven workability. The prize is only awarded for demonstrated device performance and successful publication of the results.

2010 FARADAY CUP AWARD

This year the award (in its 11th edition) was assigned to Kirsten Hacker (DESY) and Dr. Florian Loehl (CLASSE) for *Femotosecond Resolution Beam Arrival Time Monitor*.

Past recipients of the Faraday Cup Award

2008 Suren Arutunian, Yerevan Physics Institute of Armenia
2006 Haixin Huang, BNL, and Kazuyoshi Kurita, Rikkyo University
2004 Toshiyuki Mitsuhashi, KEK
2002 Andreas Jansson, CERN
2000 Kay Wittenburg, DESY
1998 Andreas Peters, GSI
1996 Walter Barry, LBNL and Hung-chi Lihn, SLAC
1994 Edward Rossa, CERN
1993 Donald W. Rule & Ralph B. Fiorito, NSWC
1992 Alexander V. Feschenko, INR
For more information: www.faraday-cup.com/

COMMITTEES

Scientific Program Committee (PC)

Doug Gilpatrick, LANSCE/LANL, Chairman
Ken Jacobs, SRC/U. Wisconsin
Rhodri Jones, CERN
Kevin Jordan, TJNAF
Bob Lill, ANL
Ralph Pasquinelli, FNAL
Tom Russo, BNL
Fernando Sannibale, LBNL
Jim Sebek, SLAC/Stanford
Tom Shea, SNS/ORNL
Om Singh, BNL
Steve Smith, SLAC/Stanford
Hitoshi Tanaka, Spring-8/RIKEN
Bob Webber, FNAL
Jonah Weber, LBNL
Michelle Wilinski, BNL
Jim Zagel, FNAL

The PC and some LOC members at the Fall BIW10 meeting included (first row) Steve Smith, Linda Zwick, Bob Webber, Tom Shea, Kevin Jordan, and Tom Russo; (second row) Jim Sebek, Doug Gilpatrick, Om Singh, Jonah Weber, Jim Zagel, and Hitoshi Tanaka; (third row) Bob Hettel and Rod McCrady.

2010 Local Organizing Committee (LOC)

LOC Chairman: Doug Gilpatrick
LOC Co-Chairman: Rod McCrady
DARHT Facility Coordinator: Trent McCuistian
Workshop Primary Administrator: Linda Zwick
Workshop Support Administrators: Cecilia Duenas, Jean N. Trujillo
Web Site Designer/Developer: Rich Young/Brittany Somers
Web Site Content Development & Administration: Connie Russell
Proceedings Editors: Clay Dillingham; Joe Chew (LBNL)
Technical Q&A Coordinator: John Power
Vendor Coordinator: James Sedillo
Poster Session Coordinator: Fermin Gonzales
Workshop Photographer: Derwin Martinez

REGISTERED PARTICIPANTS (177)

Aleksandrov, Alexander
Oak Ridge National Laboratory

Artinian, Sebastien
GMW/Bergoz Instrumentation

Baboi, Nicoleta
DESY

Bachimanchi, Ramakrishna
Jefferson Lab

Barnes, Peter
STFC/RAL/ISIS

Baros, Dolores
Los Alamos National Laboratory

Barry, Walter
Lawrence Berkeley National Laboratory

Batygin, Yuri
Los Alamos National Laboratory

Becker, Frank
GSI Helmholtzzentrum für
Schwerionenforschung GmbH

Belohrad, David
CERN

Bergoz, Julien
GMW/Bergoz Instrumentation

Boehme, Christian
University of Dortmund, Germany

Bonal, David
National Instruments

Borga, Andrea
Sincrotrone Trieste

Bousonville, Michael
GSI Helmholtzzentrum für
Schwerionenforschung GmbH

Brossard, Julien
LAL-IN2P3-CNRS

Brown, Alex
Diamond Detectors Ltd.

Byrd, John
Lawrence Berkeley National Laboratory

Canfield, Brad
TDK-Lambda Americas

Cheng, Weixing
Brookhaven National Laboratory

Chin, John
Magnetic Metals Corp

Chin, Michael
Lawrence Berkeley National Laboratory

Cohen, Stanley
BiRa Systems, Inc.

Combettes, Bruno
Photonis

Connolly, Roger
Brookhaven National Laboratory

Corbett, Jeff
SLAC National Accelerator Laboratory

Debelle, Thierry
National Instruments

Decker, Glenn
Argonne National Laboratory

Della Penna, Al J.
Brookhaven National Laboratory

Dietrich, Juergen
Forschungszentrum Juelich

Dooling, Jeffrey
Argonne National Laboratory

Douglas, David R.
Jefferson Lab

Dusatko, John
SLAC National Laboratory

East, Gary
Indiana University

Erickson, John
Los Alamos National Laboratory

Evtushenko, **Pavel**
Jefferson Lab

Ferianis, Mario
Sincrotrone Trieste

Fiorito, Ralph
University of Maryland

Ford, Dan
Ophir-Spiricon

Frayer, Daniel
National Security Technologies, LLC

Gabor, Christoph
STFC/RAV (ASTEC)

Garcia, Fernanda
Fermilab

Gasior, Marek
CERN

Gilbert, Barrie
Analog Devices, Inc.

Gillespie, William
University of Dundee

Gilpatrick, Doug
Los Alamos National Laboratory

Gratz, Jeff
Matsusada Precision, Inc.

Griesmayer, Clara
Cividec Instrumentation

Griesmayer, Erich
Cividec Instrumentation

Gruchalla, Michael
Los Alamos National Laboratory

Gulley, Mark
Los Alamos National Laboratory

Hacker, Kirsten
DESY/University of Hamburg

Hagmann, Mark
Newpath Research L.L.C.

Hama, Hiroyuki
Tohoku University

Hamill, Alan
Photonis

Hansli, Matthias
Technische Universitat Darmstadt

Harasimowicz, Janusz
University of Liverpool

Hassell, Robin
Agilent Technologies

Hsu, Kuo-Tung
NSRRC

Huang, Gang
Lawrence Berkeley National Laboratory

Ilinski, Petr
Brookhaven National Laboratory

Iriso, Ubaldo
CELLS

Jacobs, Ken
University of Wisconsin, SRC

Jansson, Andreas
Fermilab

Johns, Glen
Los Alamos National Laboratory

Johnson, Kenneth
Los Alamos National Laboratory

Jones, Kevin
Los Alamos National Laboratory

Jones. Rhodri
CERN

Jordan, Kevin
Jefferson Lab

Kawall, David
University of Massachusetts

Kibilko, Mark
CAEN Technologies, Inc.

Kirsch, Matthias
Struck Innovative Systeme GmbH

Kolski, Jeffrey
Los Alamos National Laboratory

Kosciuk, Bernie
Brookhaven National Laboratory

Kosicek, Andre J.
Instrumentation Technologies

Kowalski, Powel
BiRa Systems, Inc.

Kowina, Piotr
GSI Darmstadt

Krasilnikov, Mikhail
DESY

Kutac, Vincent
Los Alamos National Laboratory

Laprade, Bruce
Photonis

Latam, Chris
Oerlikon Leybold Vacuum

Leban, Peter
Instrumentation Technologies

Leitner, Daniela
Lawrence Berkeley National Laboratory

Lensch, Timmy
DESY

Lidia, Steven
Lawrence Berkeley National Laboratory

Lill, Robert
Argonne National Laboratory

Lipka, Dirk
DESY

Loehl, Florian
Cornell University

Loos, Henrik
SLAC

Lumpkin, Alex
Fermilab

Madison, Terry
Los Alamos National Laboratory

Marawar, Ravi
National Instruments

Marques, Sergio
Brazilian Synchrotron Light Source

Marroquin, Pilar
Los Alamos National Laboratory

Marshall, Patrick
Matsusada Precision, Inc.

McCrady, Rodney
Los Alamos National Laboratory

McDonnell, Ed
National Instruments

Mernick, Kevin
Brookhaven National Laboratory

Militello, Sal
Oerlikon Leybold Vacuum

Morgan, Alun F. D.
Diamond Light Source

Murray, Dave
Times Microwave Systems

Nölle, Dirk
DESY

Oddo, Peter
Brookhaven National Laboratory

Otake, Yuji
RIKEN

Padrazo, Danny
Brookhaven National Laboratory

Papadopoulos, Christos
Lawrence Berkeley National Laboratory

Pasquinelli, Ralph J.
Fermilab

Parber, Jonathan
Times Microwave Systems

Payne, Steve
STFC, Rutherford Appleton Laboratory

Pieck, Martin
Los Alamos National Laboratory

Pillai, Chandra
Los Alamos National Laboratory

Pinayev, Igor
Brookhaven National Laboratory

Pogge, James
SNS Oak Ridge

Portmann, Gregory
Lawrence Berkeley National Laboratory

Ptitsyn, Vadim
Brookhaven National Laboratory

Ravindran, Murali
National Instruments

Reed, Jeff
Pearson Electronics, Inc.

Rehm, Guenther
Diamond Light Source

Reichau, Hermine
J.W.G. University Frankfurt

Repic, Borut|
Instrumentation Technologies

Richter, Brian
GMW Associates

Ripert, Marion
Heidelberg Ion Beam Therapy Center

Rodriguez Esparza, Sergio
Los Alamos National Laboratory

Rossi, Fabio
Sincrotrone Trieste S.C.p.A.

Russo, Thomas
Brookhaven National Laboratory

Sanchez, Manuel
Times Microwave Systems

Sanfelici, Lucas
Brazilian Synchrotron Light Source

Scarpine, Victor
Fermilab

Schlott, Volker
Paul Scherrer Institut

Schmickler, Hermann
CERN

Schwellenbach, David
National Security Technologies, LLC

Sebek, James
SSRL/SLAC

Sedillo, James
Los Alamos National Laboratory

Serio, Mario
INFN-LNF

Shapovalov, Andrey
DESY

Shaw, Boyd
ZTEC

Shea, Thomas
Oak Ridge National Laboratory

Shelley, Fred
Los Alamos National Laboratory

Simon, Claire
CEA/Saclay

Singh, Om
Brookhaven National Laboratory

Smith, Brian
Los Alamos National Laboratory

Smith, Stephen
SLAC/CERN

Soden, Richard
Agilent Technologies

Spruit, Dan
TDK-Lambda Americas

Stancari, Giulio
Fermilab

Steimel, Jim
Fermilab

Sun. Xiang
Argonne National Laboratory

Tanaka, Hitoshi
RIKEN

Teytelman, Dmitry
Dimtel, Inc.

Tobiyama, Makoto
KEK, Accelerator Laboratory

Toshiyuki, Mitsuhashi
SLAC National Accelerator Laboratory

Truchard, James
National Instruments

Van Winkle, Daniel
KEK, Accelerator Laboratory

Vetter, Kurt
Brookhaven National Laboratory

Walasek-Hoehne, Beata
GSI

Wang, Jingsong
CST of America

Watanabe, Tamaki
RIKEN Nishine Center

Waters, Chris
Pearson Electronics, Inc.

Webber, Robert
Fermilab

Weber, Jonah
Lawrence Berkeley Nation
al Laboratory
Welsch, Carsten P.
University of Liverpool

Wendt, Manfred
Fermilab

Whitehead, Sarah
STFC/RAL/ISIS

Wilcox, Nicholas
National Security Technologies, LLC

Wilinski, Michelle
Brookhaven National Laboratory

Winkler, Marty
Times Microwave Systems

Wissman, Mark
Jefferson Lab

Wittenburg, Kay
DESY

Yang, Bingxin
Argonne National Laboratory

Yao, Chihyuan
Argonne National Laboratory

Yin, Yan
YY Labs, Inc.

Young, Andrew
SLAC

Zagel, James
Fermilab

Zamatzas, Christos
CERN

Zhang, Dehong
Fermilab

Zhang, Hao
IREAP, University of Maryland, College Park Energy Research Facility

Zhukov, Alexander
Oak Ridge National Laboratory

Group photo taken on Monday in front of the Cathedral Basilica of St. Francis of Assisi. The original full name of the city was La Villa Real de la Santa Fé de San Francisco de Asis, or "Royally Chartered City of the Holy Faith of St. Francis of Assisi." The church is at the east end of the Plaza, near La Fonda, the conference venue.

Sunday

Registration and reception


EXIT
2010
Beam
Instrumentation
Workshop
Registration


LA TERRAZA

Monday

Faraday Cup Award

*Julien Bergoz (*far left*), representing Award sponsor Bergoz Instrumentation, and BIW10 chair Douglas Gilpatrick (*far right*), of Los Alamos National Laboratory, with co-winners Kirsten Hacker of DESY and Florian Loehl of CLASSE.*

Keynote Address

Kevin Jones, Director for Accelerator Science and Technology at Los Alamos, looks beyond LANSCE to the MARIE Facility.

Registration and reception

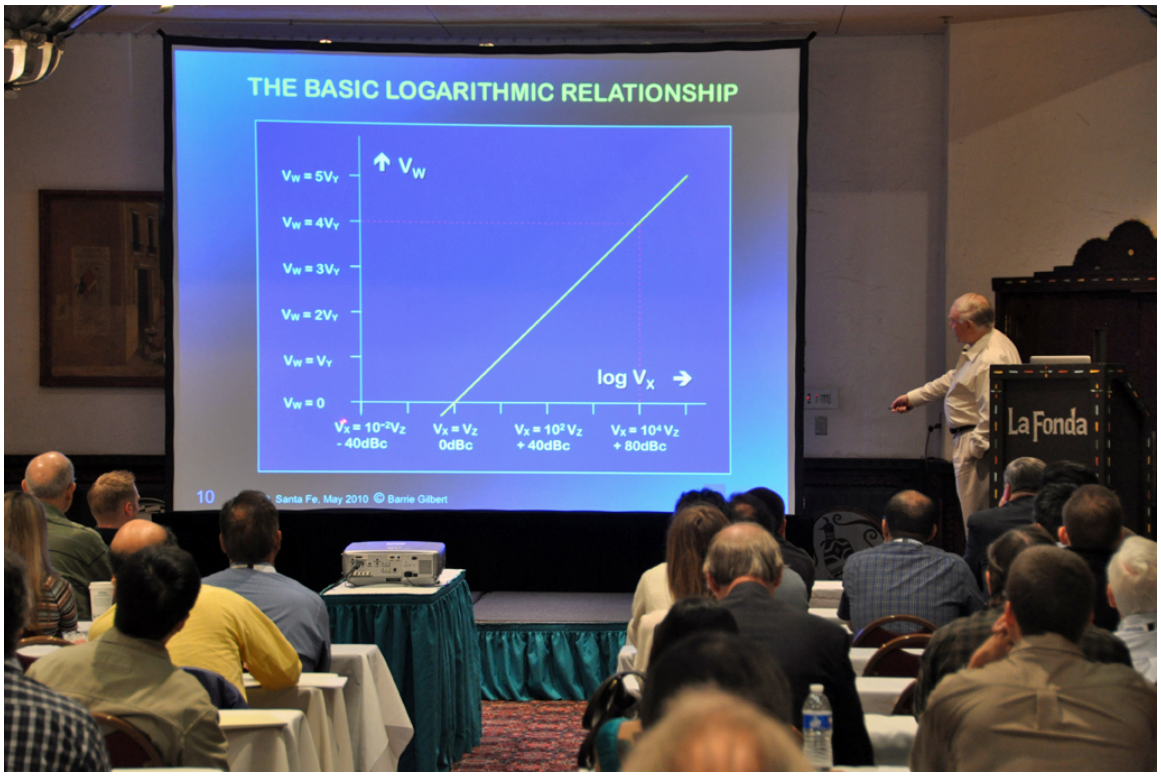
Exhibits and orals

Scenes from Monday's vendor reception

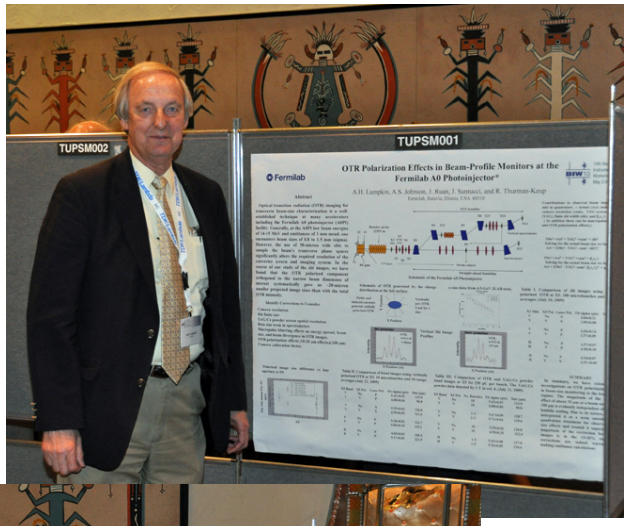

GMW
INSTRUMENTATION
Magnetic • Current • Fiber-Optic
CAEN
Tools for Discovery
Magnetic Metals
Our Plant Locations
Cut Cores

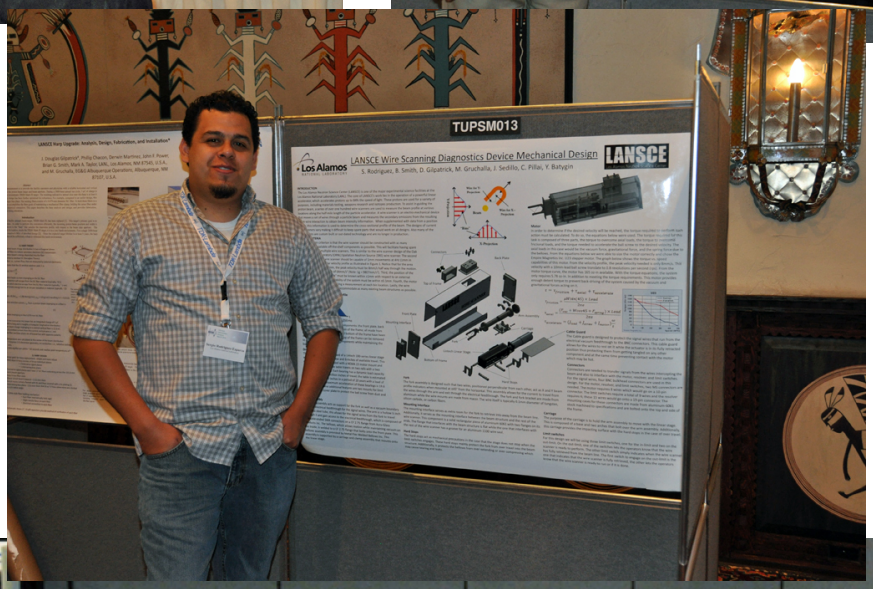
Tuesday

The first tutorial (Barrie-Gilbert on logarithmic amplifiers) began the day's oral program.

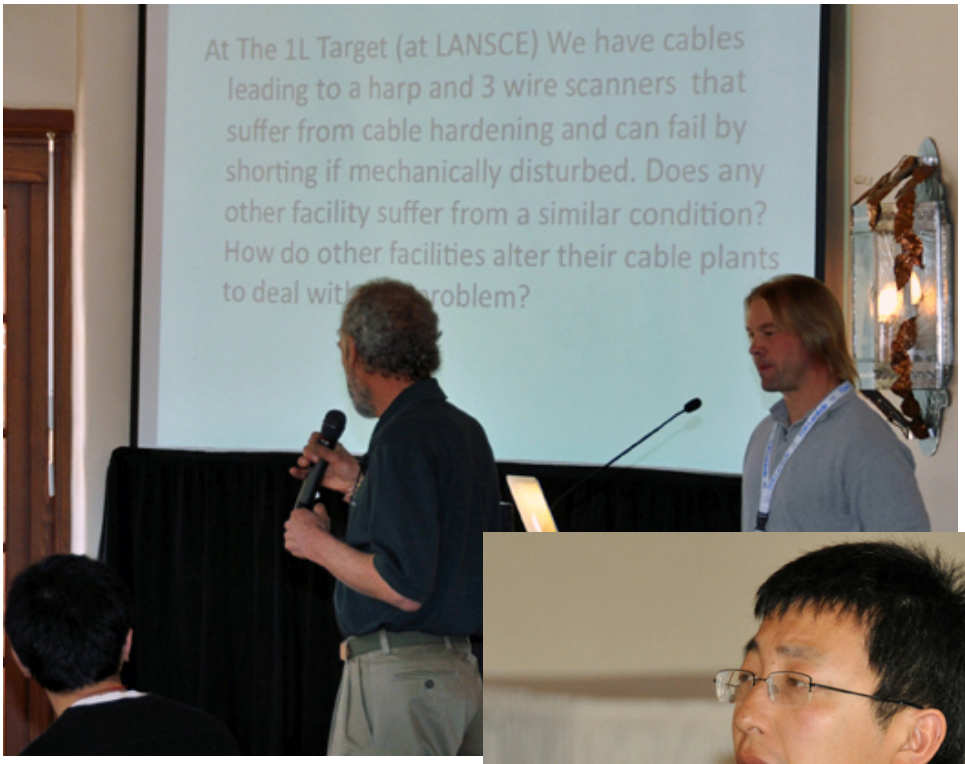


In the afternoon, a poster session in a setting of folk-art décor, plus vendor exhibits and a vendor technical oral…



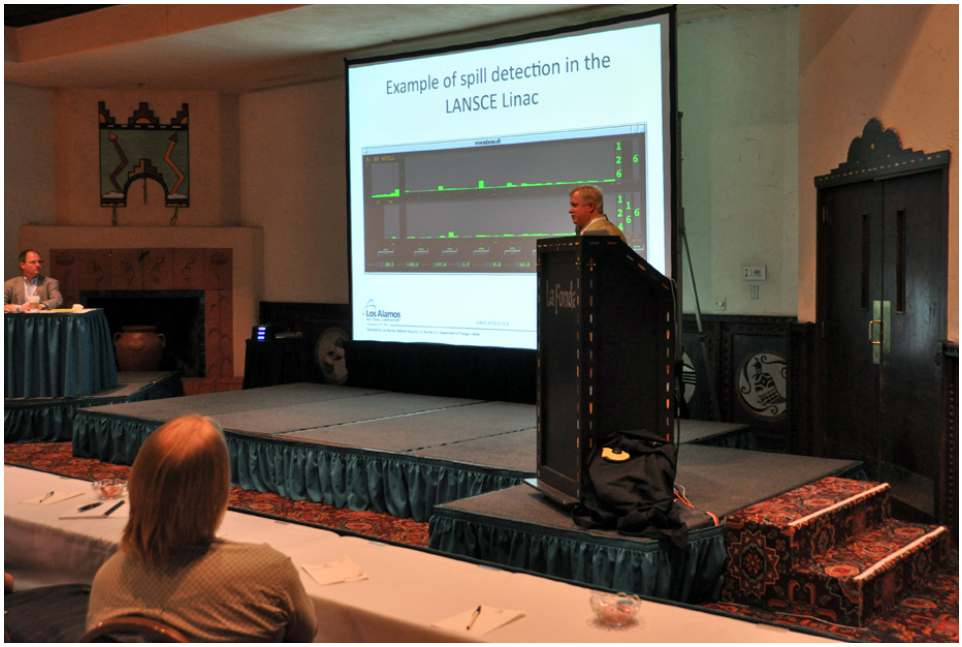


…and a technical Q&A session (chair: R.C. McCrady, LANL) over a working lunch.



Wednesday

A tutorial oral in a handsome setting began the day's program…



…a day that ended with a banquet at La Terraza.

The evening of the banquet featured a performance by Mariachis Sonidos del Monte.

Thursday

A tutorial oral on beam loss monitors began the day's oral program, which ended with a look forward to BIW12 (April 16-19, Marriott City Center, Newport News, VA).

All aboard! After the last session on Thursday came a tour of the Los Alamos Neutron Science Center (LANSCE), a linac-based center that supports three user facilities.

A lecture about the facility…

…and about the experimental area

Drift-tube linac

RF gallery

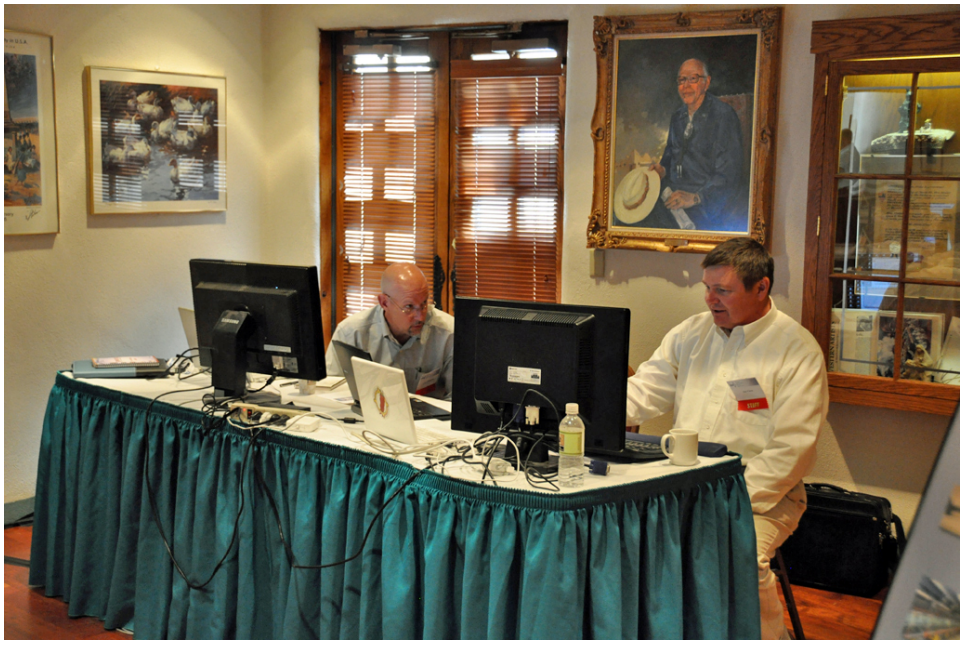
Switchyard

Control room

Making It Happen

Some of the many people behind the scenes..

Cecelia Duenas of Los Alamos performed roles including editing



Co-editors Clay Dillingham (l.) of Los Alamos and Joe Chew of Berkeley Lab

Jean Trujillo of Los Alamos at the business desk

Peggy Vigil of Los Alamos (l.), working the registration desk, enjoys a visit from Lorie Woodmansee of La Fonda.

(l-r) Conference administrator Linda Zwick, Peggy Vigil, and Doug Gilpatrick