Status of Neutrino Factory and Muon Collider Research and Development and future plans

Maury Goodman, Ahmed Hassanein, James H. Norem,
Claude B. Reed, Lee C. Teng, Chun–xi Wang
Argonne National Laboratory, Argonne, IL 60439

D. Marfatia
Boston University, MA 02215

J. Scott Berg, Richard C. Fernow, Juan C. Gallardo, Ramesh Gupta,
Stephen A. Kahn, Harold G. Kirk, David Lissauer, Laurence S. Littenberg,
William A. Morse, Satoshi Ozaki, Robert B. Palmer, Zohreh Parsa, Ralf Prigl,
Pavel Rehak, Thomas Roser, Nick Simos, Iuliu Stumer, Valeri Tcherniatine,
Peter Thieberger, Dejan Trbojevic, Robert Weggel, Erich H. Willen, Yongxiang Zhao
Brookhaven National Laboratory, Upton, NY 11973

Gregory I. Silvestrov, Alexandr N. Skrinsky, Tatiana A. Vsevolozhskaya
Budker Institute of Nuclear Physics, 630090 Novosibirsk, Russia

Gregory Penn, Jonathan S. Wurtele*
University of California-Berkeley, Physics Department, Berkeley, CA 94720

John F. Gunion
University of California-Davis, Physics Department, CA 95616

David B. Cline, Yasuo Fukui, Alper A. Garren, Kevin Lee, Yuriy Pischalnikov
University of California-Los Angeles, Los Angeles, CA 90095

Bruno Autin, Roland Garoby, Helmut Haseroth,
Colin Johnson, Helge Ravn, Edmund J. N. Wilson
CERN, 1211 Geneva 23, Switzerland

Kara Hoffman, Kwang-Je Kim, Mark Oreglia, Yau Wah

The University of Chicago, Chicago, IL 60637

Vincent Wu

University of Cincinnati, Cincinnati, OH 45221

Allen C. Caldwell, Janet M. Conrad, Jocelyn Monroe,
Frank Sciulli, Michael H. Shaevitz, William J. Willis

Columbia University, Nevis Laboratory, Irvington, NY 10533

Hasan Padamsee, Maury Tigner

Cornell University, Newman Laboratory for Nuclear Studies, Ithaca, NY 14853

David R. Winn

Fairfield University, Fairfield, CT 06430

Charles M. Ankenbrandt, Muzaffer Atac, Valeri I. Balbekov, Elizabeth J. Buckley-Geer,
David C. Carey, Sam Childress, Weiren Chou, Fritz DeJongh, H. Thomas Diehl,
Alexandr Drozhdin, Daniel Elvira, David A. Finley, Stephen H. Geer,
Krishnaswamy Gounder, D. A. Harris, Carol Johnstone, Paul Lebrun,
Valeri Lebedev, Joseph D. Lykken, Frederick E. Mills, Nikolai V. Mokhov,
Alfred Moretti, David V. Neuffer, King-Yuen Ng, Milorad Popovic,
Zubao Qian,Rajendran Raja[†] and Panagiotis Spentzouris, Ray Stefanski, Sergei Striganov,
Alvin V. Tollestrup, Zafar Usubov, Andreas Van Ginneken, Steve Vejcik

Fermi National Accelerator Laboratory,
P. O. Box 500, Batavia, IL 60510

Alain Blondel

University of Geneva, Switzerland

John G. Learned, Sandip Pakvasa

University of Hawaii, Department of Physics, Honolulu, HI 96822

Massimo Ferrario

INFN-LNF, via E-Fermi 40, Frascati (Roma), Italy

K. Whisnant

Iowa State University, Ames, IA 50011

S. Alex Bogacz, Swapan Chattopadhyay, Haipeng Wang

Jefferson Laboratory, 12000 Jefferson Ave., Newport News, VA 23606

T. Bolton

Kansas State University, Manhattan, KS 66502-2601

Yoshitaka Kuno, Yoshiharu Mori, Takeichiro Yokoi

KEK High Energy Accelerator Research Organization, 1-1 Oho, Tsukuba 305, Japan

Edgar L. Black, Daniel M. Kaplan, Nickolas Solomey, Yağmur Torun

Illinois Institute of Technology, Physics Div., Chicago IL 60616

Deborah Errede, Kyoko Makino

University of Illinois, at Urbana, Urbana-Champaign, IL 61801

Michael S. Berger, Gail G. Hanson, Daniel Krop,Peter Schwandt

Indiana University, Physics Department, Bloomington, IN 47405

Ilya F. Ginzburg

Institute of Mathematics, Prosp. ac. Koptyug 4, 630090 Novosibirsk, Russia

Yasar Onel

University of Iowa, Physics Department,

Van Allen Hall, Iowa City, IA 52242

Shlomo Caspi, John Corlett, Miguel A. Furman, Michael A. Green,,

C.H. Kim,[‡] and Derun Li, Alfred D. McInturff, Louis L. Reginato,

Robert Rimmer, Ronald M. Scanlan, Andrew M. Sessler, Brad Shadwick,

William C. Turner, Simon Yu, Michael S. Zisman, Max Zolotorev

Lawrence Berkeley National Laboratory,

1 Cyclotron Rd., Berkeley, CA 94720

Martin Berz, Richard York, Al Zeller

Michigan State University, East Lansing, MI 48824

Stephen B. Bracker, Lucien Cremaldi, Don Summers

University of Mississippi, Oxford, MS 38677

John R. Miller, Soren Prestemon

National High Magnetic Field Laboratory,

Magnet Science & Technology, FL 32310

Gerald C. Blazey, Mary Anne Cummings, David Hedin

Northern Illinois University, DeKalb, IL 60115

Bruce J. King, Heidi M. Schellman,

Northwestern University, Department of Physics and Astronomy, Evanston, IL 60208

Tony A. Gabriel, Norbert Holtkamp, Philip T. Spampinato

Oak Ridge National Laboratory, Oak Ridge, TN 37831

Eun-San Kim, Moohyun Yoon

Pohang University of Science and Technology, POSTECH,

Sam 31, Hyoja dong, Pohang, Kyungbuk, 790-784, Korea

Changguo Lu, Kirk T. McDonald, Eric J. Prebys

Princeton University, Joseph Henry Laboratories, Princeton, NJ 08544

Robert Rossmanith

Research Center Karlsruhe, D-76021 Karlsruhe, Germany

J. Roger J. Bennett

Rutherford Appleton Laboratory, Chilton, Didcot, Oxon OX11 0QX, UK

I. Mocioiu, Robert Shrock

Department of Physics and Astronomy, SUNY, Stony Brook, NY 11790

Odette Benary

Tel-Aviv University, Ramat-Aviv, Tel-Aviv 69978, Israel

Vernon D. Barger, Tao Han

Department of Physics, University of Wisconsin, Madison, WI 53706

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Abstract

We describe the status of the effort to realize a first neutrino factory and the progress made in understanding the problems associated with the collection and cooling of muons towards that end. We summarize the physics that can be done with neutrino factories as well as with intense cold beams of muons. The physics potential of muon colliders is reviewed, both as Higgs Factories and compact high energy lepton colliders. The status and timescale of the research and development effort is reviewed as well as the latest designs in cooling channels including the promise of ring coolers in achieving longitudinal and transverse cooling simultaneously. We detail the efforts being made to mount an international cooling experiment to demonstrate the ionization cooling of muons.

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*also at Lawrence Berkeley National Laboratory

†Correspondent; Electronic address: `raja@fnal.gov`

‡deceased