

Thomas R. Kobilarcik
MS 221, PO Box 500
Batavia, IL 60510
(630) 840-2882
kobilarc@fnal.gov

Education:

1992: M.S., Physics, Northeastern Illinois University
1987: A.B, Physics, University of Chicago

Teaching Positions:

1994-1995: Marist High School
1994 (summer): Hale's Franciscan High School
1987-1989: Our Lady of Good Counsel High School

Positions at Fermilab:

2010-present: Deputy Department Head, External Beams
2009-present: Senior Engineering Physicist
2007-2009: Engineering Physicist III
2000-2007: Engineering Physicist II
1995-2000: Engineering Physicist I
1994-1995: Visiting Scientist
1992-1994: Engineering Physicist I
1989-1991: Research Division Operator

Continued Education:

United States Particle Accelerator School
2012 Managing Science in Research Labs
2004 High Intensity Beams
2004 Classical Mechanics and E&M for Accelerators and Beams
2003 Accelerator Physics
2001 Object-Oriented Computational Accelerator Physics
2001 Accelerator Fundamentals
1993 Introduction to Modern Dynamics
1993 Computer Methods in Particle Tracking
1992 Charged Particle Optics
1992 Introduction to Linear Accelerators
1992 Numerical Methods, Maxwell and Newton
1991 Experimental Methods in Accelerator Physics

Professional Membership:

American Association of Physics Teachers, 1984-1989

Collaboration/Experiment Participation:

E921 (CKM) 1998-2004

E898 (BooNE)	2000-(present)
E944 (BooNE)	2006-(present)
E954 (SciBooNE)	2006-(present)

Responsibilities at Fermilab:

Research Division Operator (1989-1991):

Operate and maintain equipment necessary to transport primary beam to target, and secondary beam to experiments.

KTeV Facility (1992-1995):

Simulated passage of muons through beamline elements in order to design magnetic sweeping system and optimize passive shielding.

Responsible for initial design of muon sweeping magnet.

PB Beamline (1996-1997):

Aided in design of improved optics. Responsible for installation of new devices. Lead commissioning of beamline. Responsible for operation of beamline.

CKM Beamline (1998-2004)

Proposed RF separated beamline for high-purity kaon beam at Fermilab. Refined conceptual design by Jaap Dornbos to use available resources at Fermilab. Assisted in cost estimate and civil design of beamline and detector enclosures.

MTest Beamline (1999):

Designed optics and beam dump for test beam. Responsible for installation of new systems. Commissioned beamline. Responsible for operation of beamline.

MTest Beamline (2003):

Designed. Assisted in commissioning beamline.

Switchyard 120 (1997-2005):

Redesigned primary beam transfer system from Main Ring remnant for primary target. This encompasses approximately 1.5 km of beamline. Responsible for alignment during installation. Assisted in commissioning beamline.

Booster Neutrino Beamline (2003-present):

Assistant machine coordinator. Implemented AutoTune (see below) for beamline.

Oversee day-to-day operation of beamline and associated systems. Assisted Booster group in defining optimal operating envelope for MiniBooNE experiment. Responsible for removal of first neutrino horn and installation of second.

Machine coordinator 2005 to present. Responsible for all operational and safety aspects of MI12 beamline and target hall.

SciBooNE (2006-2008)

Proposal to move SciBar detector from KEK to FNAL. Project manager for civil construction – responsible for insuring that initial civil design met technical needs of experiment and complied with safety requirements at FNAL. Acting system expert for Muon Range Detector – conceptual design of MRD; technical specification of electronics and other detector components. Acting project manager – responsible for cost

estimate of project, initial scheduling, shipping of materials from KEK to FNAL, and obtaining construction directive from DOE. Deputy project manager.

Automatic Beamline Correction (AutoTune) (1989-present):

1989: Implemented system to correct MCenter beam based on operating status of Meson Area.

1990-1991: Developed software to acquire and analyze beam profile data from segmented wire ionization chambers (SWIC). Software was used in automatic correction of NEast beamline.

1992-1994: Developed C/Fortran libraries to facilitate use of EPICRE control system. Libraries were used in second generation of automatic correction system.

1995: Implemented automatic correction system for PB beamline. Aided in implementing system for KTeV.

2002-present: Responsible for development of new correction software compatible with ACNET control system. Implemented in BooNE and other fixed target experiments.

Review Committees:

NuMI Beamline Review (2001):

Reviewer on NuMI beamline review committee. Assisted in redesign of NuMI beamline which was a result of this review.

NuMI Beam Permit System Review (2003)

Reviewer on NuMI beam permit system review committee. Aided in definition of operational envelope and monitoring techniques to be used in NuMI BPS. Prototyped monitoring and implemented in MiniBooNE beam permit system.

NuMI Commissioning Workshop (2004)

Participated in NuMI commissioning workshop, primary interest in implementation of AutoTune for NuMI. Assisted in definition of AutoTune framework for NuMI.

MuCool Beamline Review (2005)

Reviewer on MuCool beamline review committee. Reviewed technical readiness of beamline design/

Fixed Target Drell-Yan Experiment at Fermilab

Explore the possibility of polarized DY experiment at existing facilities like, RHIC, Fermi Lab and JPAC.

Intensity Frontier Beam Data Requirements Working Group (2011)

Draft a set of requirements for the extraction and presentation of beams data from the FNAL accelerator systems for use in the current and future Intensity Frontier experiments.

LBNE Project Near Site Internal Review (2011)

Review of the beamline and near detector technical systems and the conventional facilities to house them that will be built on the Fermilab (near) site for the project. The review will cover only the design of these systems.

Machine Beam Loss Scenarios Panel (2012)

The deliverable from this panel will be a table of beam loss scenarios (general format attached) for each portion of the accelerator complex. This table is to include a listing of systems, policies, or procedures in place that help prevent particular beam losses from occurring. Based on these tables, the panel is also to recommend the credible beam loss scenario(s) to be used for each portion of the accelerator complex for the shielding assessment accident condition.

Proposals:

Charged Kaons at the Main Injector, A Proposal for a Precision Measurement of the Decay $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ and Other Rare K^+ Processes at Fermilab Using the Main Injector.

Bringing the SciBar Detector to the Booster Neutrino Beamline.

Seminars and Conferences:

- 5th International Workshop on Neutrino Beams and Instrumentation (NBI 2005), July 2005: *The MiniBooNE Primary Beamline*
- Fermilab, Accelerator Physics and Technology Seminar, December 2001 (with L. Bellantoni): *A Separated K⁺ Beamline and Superconducting RF for It*
- International Committee for Future Accelerators (ICFA) Conference, May, 2002: *Automatic Beamline Correction*

Contributions Presented at Conferences

- PAC 2003, April 2003, *Automatic Beamline Correction* – T. Kobilarcik, J. DeVoy, C. Moore.
- PAC 2003, April 2003, *Initial Operation of the Fermilab MiniBooNE Beamline* – C. Moore, et al.
- IEEE Particle Accelerator Conference (PAC 2001), July 2001, *Slow Extraction from the Fermilab Main Injector* – C. Moore, et al.

Technical Memoranda:

- 1) Optics Upgrade for Switchyard. FERMILAB-TM-2324-AD (Aug 2005)
- 2) Beam Test of a Segmented Foil SEM Grid (MINOS Collaboration) (Jul 2005) FERMILAB-PUB-05-045-AD, published in Nucl.Instrum.Meth.A554:138-146, 2005.
- 3) The Neutrino Factory and Beta Beam Experiments and Development (Neutrino Factory/Muon Collider Collaboration) (Nov 2004) FERMILAB-TM-2259
- 4) Momentum Errors in an RF Separated Beam FERMILAB-TM-2185 (Sep 2002)
- 5) The MiniBooNE Detector Technical Design Report (MiniBooNE collaboration) FERMILAB-TM-2207 (May 2001)
- 6) Two RICH Detectors as Velocity Spectrometers in the CKM Experiment (J. Engelfried, et al.) Nucl.Instrum.Meth.A502:62-66,2003. [hep-ex/0209020]
- 7) Slow Extraction from the Fermilab Main Injector (C. Moore, et al.) FERMILAB-CONF-01-148-E, PAC-2001-TPAH146 (Jul 2001).
- 8) How to Construct a Second Order Achromat with a 90-degree Phase Advance FERMILAB-TM-2119 (Jun 2000)
- 9) A Feasibility Study of a Neutrino Source Based on a Muon Storage Ring (N. Holtkamp editor, et al.) SLAC-PREPRINT-2000-054 (Jun 2000)
- 10) A New MTest Beamline for the 1999 Fixed Target Run (with C.N. Brown) FERMILAB-TM-2108 (May 2000)
- 11) Main Injector Beam to the New Muon and Meson Areas FERMILAB-TM-2105 (Apr 2000)
- 12) An RF Separated Kaon Beam from the Main Injector: Superconducting Aspects (J.D. Fuerst, et al.) FERMILAB-TM-2060 (Nov 1998)
- 13) Performance of the KTeV High-Energy Neutral Kaon Beam at Fermilab (V. Bocean, et al.) FERMILAB-TM-2046 (Jun 1998)
- 14) Ionization Cooling Research and Development Program for a High Luminosity Muon Collider. (Charles M. Ankenbrandt, et al.) FERMILAB-PROPOSAL-0904 (Apr 1998)

- 15) Preliminary Results of Stability Study for the KTeV Beam FERMILAB-TM-2037 (Dec 1997)
- 16) Switchyard in the Main Injector Era Conceptual Design Report (C. Brown, et al.) FERMILAB-TM-2014
- 17) KTeV Beam Systems Design Report (V. Bocean, et al.) FERMILAB-TM-2023 (Sep 1997)

Current Job Description

Under minimal supervision, plans and conducts the effort of a group, major phase(s) of engineering, accelerator/systems operation, project/program of Departmental or Divisional scope/impact, utilizing an external knowledge of physics, together with management, problem-solving skills and an understanding of engineering. Lead the design of components, processes, and systems with a proficiency in the use of some of the following: modern analytical tools, software and hardware development, integration and testing, design of microelectronic circuitry, and the physics principles needed to analyze materials used in modern scientific, chemical, and mechanical and/or electrical engineering applications.