

ROBERT F. FISCHETTI
15948 Dan O'Connell Dr
Plainfield, IL 60586
(815)439-8340 Home
(630)252-0660 Work

Education

1987 Ph.D. in Physical Chemistry University of Pennsylvania, Philadelphia, Pennsylvania
1979 B.S. in Physics Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Professional Experience

2007.10-present Associate Director, National Inst. of General Medical Sciences / National Cancer Inst.
Collaborative Access Team, Biosciences Division, Argonne National Laboratory
2001-2007 Project Manager for Operations and Beamline Development, National Inst. of General Medical Sciences / National Cancer Inst. Collaborative Access Team, Biosciences Division, Argonne National Laboratory
2000-2001 Associate Director for Operations and Beamline Development, Biophysical Collaborative Access Team, Advanced Photon Source, Argonne National Laboratory
1998-2000 Senior Managing Beamline Scientist, Biophysical Collaborative Access Team, Advanced Photon Source, Argonne National Laboratory
1998-1999 Lecturer, Department of Biological, Physical and Chemical Sciences, Illinois Institute of Technology
1996-1998 Senior Beamline Scientist, Biophysical Collaborative Access Team, Advanced Photon Source, Argonne National Laboratory
1994-1995 Associate Director, Regional Center for Time Resolved X-ray Spectroscopy, National Synchrotron Light Source, Brookhaven National Laboratory
1993-1994 Assistant Director, Biostructures Institute, University City Science Center and Biostructures Participating Research Team, National Synchrotron Light Source, Brookhaven National Laboratory
1987-1992 Staff Scientist, Biostructures Institute, University City Science Center and Biostructures Participating Research Team, National Synchrotron Light Source, Brookhaven National Laboratory
1987-1989 Postdoctoral Fellow, Laboratory for Research on the Structure of Matter, University of Pennsylvania
1982-1983 Graduate Teaching Assistant, Department of Chemistry, University of Pennsylvania
1977-1980 Undergraduate Research Assistant (summer breaks), Department of Biochemistry and Biophysics, University of Pennsylvania

Current Research Interests

Developing methods to record wide angle x-ray scattering (WAXS) data from dilute protein solutions including novel methods of data analysis to classify protein fold and characterize protein behavior in solution.

Development of instrumentation for X-ray scattering and crystallography of biological macromolecules including micro-beams, improved beam stability, and automation of sample and beamline setup for improved high throughput operations.

List of Professional Activities

Membership

2002-present American Crystallographic Association

Committees

2008-present Chair, APS Life Sciences Council
2008-present Member, NIH advisory panel for NSLS-II
2008-present Member, Scientific Advisory Board of the EMBL@PETRA3 project
2007-present Member, MacCHESS external advisory committee
2005-present Member, Protein Crystallography Beamline Advisory Panel, Australian Synchrotron Project
2005-present Chair, IMCA-CAT External Review Board
2001-present Member, LS-CAT Review Committee
2005-present Member, APS User Data Integration Project Advisory Committee

Past Committees

2002-2008 Chair, APS Beamtime Allocation Committee for Macromolecular Crystallography
2005-2008 Member, Argonne Institutional Biosafety Committee
2002-2003 Member, Dual-Canted Undulator Front End Design Review Committee
2002-2003 Member, APS Electronic Document Management System Task Force
2001-2002 Member, HP-CAT Technical Advisory Committee

Community Service

2006 Special reviewer of SBIR phase I progress and phase II plans for the Compact Light Source, National Institute of General Medical Sciences (NIGMS)
2001-present Reviewer for manuscripts in Journal of Synchrotron Radiation; Synchrotron Radiation Instrumentation
2004 Reviewed a manuscript for Journal of Synchrotron Radiation

Review Panels

2008 Member, NIH working group to evaluate proposals for beamlines at the NSLS-II
2008 Member, NIH working group of the National Center for Research Resources and the National Institute of General Medical Sciences to advise us on the capabilities of and capacity needed for life sciences research at NSLS-II
2008 Member, NIH special emphasis panel to review/site-visit the suite of 6 beamlines operated by the PX Research Resource at the National Synchrotron Light Source, Brookhaven, New York
2007 Member, NIH special emphasis panel to review/site-visit the suite of 4 beamlines operated by the MacCHESS Research Resource at Cornell High Energy Synchrotron Source, Ithaca, New York
2006 Member, Sector Review Panel for macromolecular crystallography beamlines at BioCARS, Advanced Photon Source, Argonne, Illinois
2006 Member, review panel for the suite of 7 macromolecular crystallography beamlines at the European Synchrotron Research Facility in Grenoble, France
2004 Member, NIH special emphasis panel to review/site-visit the suite of 6 beamlines operated by the Macromolecular Crystallography Group Research Resource at Stanford Synchrotron Radiation Laboratory, Palo Alto, California
2003 Member, NIH special emphasis panel to review/site-visit the suite of 5 beamlines operated by the PX Research Resource at National Synchrotron Light Source, Brookhaven, New York

Publications (peer-reviewed journals)

1. Chance, B., Barlow, C., Nakase, Y., Takeda, H., Mayevsky, A., **Fischetti, R.**, Gramham, N. and Sorge, J. (1978) Heterogeneity of Oxygen Delivery in Normoxic and Hypoxic states: A Fluorometer Study. *Am. J. Physiol.* 235(6):H809-H820.
2. Chance, B., **Fischetti, R.**, Powers, L. (1983) The Structure and Kinetics of the Photoproduct of Carboxymyoglobin at Low Temperatures, An X-Ray Absorption Study. *Biochem.* 22:3820-3829.
3. **Fischetti, R.F.**, Filipkowski, M., Garito, A.F. and Blasie, J.K. (1988) Profile Structures of Ultrathin Periodic and Nonperiodic Multilayer Films Containing a Disubstituted Diacetylene by High Resolution X-ray Diffraction. *Phys Rev B* 37:4714-4726.
4. **Fischetti, R.F.**, Skita, V., Garito, A.F. and Blasie, J.K. (1988) Asymmetry in the Interior Arachidic Acid Bilayers Within Ultrathin Multilayers Fabricated via the Langmuir-Blodgett Technique. *Phys Rev B* 37:4788-4791.
5. Pachence, J.M., **Fischetti, R.F.** and Blasie, J.K. (1989) Location of the Heme-Fe Atoms within the Profile Structure of a Monolayer of Cytochrome c Bound to the Surface of an Ultrathin Multilayer Film. *Biophys. J.* 56:327.
6. Rosenbaum, G., Sullivan, M., **Fischetti, R.**, Rock, L. (1992) "Sagittally Focusing Scanning Monochromator Produces 0.4-mm Focus". *Review of Scientific Instrumentation* 63: 931.
7. Amador, S.M., Pachence, J.M., **Fischetti, R.F.**, McCauley, J.P. Jr., Smith, A.B. III and Blasie, J.K. (1993) The Use of Self-Assembled Monolayers to Covalently Tether Protein Monolayers to the Surface of Solid Substrates. *Langmuir* 9(3):812-817.
8. Chupa, J.A., Xu, S., **Fischetti, R.F.**, Strongin, R.M., McCauley, J.P. Jr. Smith, A.B. III, Blasie, J.K., Peticolas, L.J. and Bean, J.C. (1993) A Monolayer of C60 Tethered to the Surface of an Inorganic Substrate: Assembly and Structure. *J. Amer. Chem. Soc.* 115:4383-4384.
9. Xu, S., **Fischetti, R.F.**, Blasie, J.K., Peticolas, L.J. and Bean, J.C. (1993) Profile Structures of Self-Assembled Monolayers on Ge/Si Multilayer Substrates by X-Ray Interferometry/Holography. *J. Phys. Chem.* 97(9):1961-1969.
10. Asturias, F.J., **Fischetti, R.F.** and Blasie, J.K. (1994) Changes in the Profile Structure of the Sarcoplasmic Reticulum Membrane Induced by Phosphorylation of the Ca²⁺-ATPase Enzyme in the Presence of Terbium: A Time-Resolved X-Ray Diffraction Study. *Biophys. J.* 66:1653-1664.
11. Asturias, F.J., **Fischetti, R.F.** and Blasie, J.K. (1994) Changes in the Relative Occupancy of Metal-Binding Sites in the Profile Structure of the Sarcoplasmic Reticulum Membrane Induced by Phosphorylation of the Ca²⁺-ATPase Enzyme in the Presence of Terbium: A Time-Resolved, Resonance X-Ray Diffraction Study. *Biophys. J.* 66:1665-1677.
12. Murphy, M.A., Nordgen, E. **Fischetti, R.F.**, Blasie, J.K., Peticolas, L.J. and Bean, J.C. (1995) A Structural Study of the Annealing of Akylsiloxane Self-Assembled Monolayers on Silicone by High Resolution X-Ray Diffraction. *J. Phys. Chem.* 99:14039-14051.
13. Chance, M.R., Miller, L.M., **Fischetti, R.F.**, Scheuring, E., Huang, W.X., Sclavi, B., Hai, Y. and Sullivan, M. (1996) Global Mapping of Structural Solutions Provided by the Extended X-Ray Absorption Fine Structure ab Initio Code FEFF 6.01: Structure of the Cryogenic Photoproduct of the Myoglobin-Carbon Monoxide Complex. *Biochemistry*, 35:9014-9023.
14. Scheuring, E. M., Clavin, W., Wirt, M. D., Miller, L. M., **Fischetti, R. F.**, Lu, Y., Mahoney, N., Xie, A. H., Wu, J. J., and Chance, M. R. (1996). Time-Resolved X-ray Absorption Spectroscopy of Photoreduced Base-off Cob (II) Alamin Compared to the Co (II) Species in Clostridium Thermoaceticum. *J. Phys. Chem.* 100 (9): 3344-3348.
15. Zhong, Z., Chapman, D., Bunker, B., Bunker, G., **Fischetti, R.**, Segre, C. (1999). A Bent Laue Analyzer for Fluorescence EXAFS Detection. *J. Synchrotron Rad.* 6:212-214.
16. Irving, T.C., **Fischetti, R.**, Rosenbaum, G., and Bunker, G.B. (2000). Fiber Diffraction Using the BioCAT Undulator Beamline at the Advanced Photon Source. *Nucl. Instr. Meth.(A)* 448:250-254.
17. Irving, T.C., Konhilas, J., Perry, D., **Fischetti, R.**, and deTombe, P.P. (2000) Myofilament Lattice Spacing as a Function of Sarcomere Length in Isolated Rat Myocardium. *American Journal of Physiology, Heart Circ Physiol* 279:H2568-H2573.

18. Irving, T.C. ~~and~~ **Fischetti, R.F., Rosenbaum, G., and Bunker, G.B.** (2000). Fiber Diffraction Using the BioCAT Undulator Beamline at the Advanced Photon Source. *Fibre Diffraction Review*, **9**: 59-61.
19. Orgel, J.P., Miller, A., Irving, T.C., **Fischetti, R.F.**, Hammersley, A.P. and Wess, T.J. (2001) The in situ supermolecular structure of type I collagen. *Structure (Camb)* 9(11):1061-1069.
20. Orgel, J. P., Miller, A., Irving, T. C., **Fischetti, R. F.**, Hammersley, A. P., and Wess, T. J. (2001) The three dimensional molecular packing of native type I collagen. *Structure*, 9:1-20.
21. Orgel, J. P., Miller, A., Irving, T. C., **Fischetti, R. F.**, Hammersley, A. P., and Wess, T. J. (2002) Recent insights onto the three dimensional molecular packing structure of native type I collagen. *Fiber Diffraction Review*, 10:40-49.
22. **Fischetti, R. F.**, Rodi, D. J., Mirza, A., Irving, T. C., Kondrashkina, E., and Makowski, L. (2003) High-resolution wide-angle x-ray scattering of protein solutions: effect of beam dose on protein integrity. *J. Synch. Rad.*, 10: 398-404.
23. **Fischetti, R.**, Stepanov, S., Rosenbaum, G., Barrea, R., Black, E., Gore, D., Heurich, R., Kondrashkina, E., Kropf, A. J., Wang, S., Zhang, K., Irving, T. C., Bunker, G. B. (2004) The BioCAT undulator beamline 18ID: a facility for biological non-crystalline diffraction and x-ray absorption spectroscopy at the Advanced Photon Source. *J. Synch. Rad.* 11:399-405.
24. Reconditi, M., Linari, M., Lucii, L., Stewart, A., Sun, Y. B., Boesecke, P., Narayanan, T., **Fischetti, R. F.**, Irving, T., Piazzesi, G., Irving, M., Lombardi, V. (2004) The myosin motor in muscle generates a smaller and slower working stroke at higher load. *Nature* 428 (6982): 578-81.
25. **Fischetti, R. F.**, Rodi, D. J., Gore, D. B., and Makowski L., (2004) Wide angle x-ray solution scattering as a probe of ligand-induced conformational changes in proteins. *Chem. & Biol.* 11: 1-20.
26. Barrea, R. A., **Fischetti, R.**, Stepanov, S., Rosenbaum, G., Kondrashkina, E., Bunker, G. B., Black, E., Zhang, K., Gore, D., Heurich, R., Vukonich, M., Kropf, A. J., Wang, S., and Irving, T. C., (2004) Biological XAFS at the BioCAT Undulator Beamline 18ID at the APS. *Physica Scripta T115*: 867-869.
27. Rodi D.J., Mandava, S., Gore, D.B., Makowski, L. and **Fischetti, R.F.** (2007) Detection of Functional Ligand Binding Events Using Synchrotron X-ray Scattering; *J. Biomol. Screening*, 12: 994-998.
28. Makowski, L., Rodi, D.J., Mandava, S., Minh, D.D.L., Gore, D.B. and **Fischetti, R.F.** (2008) Molecular Crowding Inhibits Intramolecular Breathing Motions in Proteins; *J. Mol. Biol.* 375, 529-546.
29. Rasmussen, S.G.F., Choi, H.J., Rosenbaum, D.M., Kobilka, T.S., Thian, F.S., Edwards, P.C., Brughammer, M., Ratnala, V.R.P., Sanishvili, R., **Fischetti, R.F.**, Schertler, G.F.X., Weis, W.I., Kobilka, B., (2007) Crystal structure of the human β_2 adrenergic G-protein-coupled receptor", *Nature* 450, 383-387.
30. Sanishvili, R., Nagarajan, V., Yoder, D., Becker, M., Xu, S., Corcoran, S., Akey, D., Smith, J.L., **Fischetti, R.F.** (2008) A 7 μ m mini-beam improves diffraction data from small or imperfect crystals of macromolecules, *Acta. Cryst. D.* 64, 425-435.
31. Makowski, L.; **Rodi, D.J.**; Mandava, S.; Devarapalli, S. and Fischetti, R.F. (2008) Characterization of Protein Fold using Wide Angle X-ray Solution Scattering; *J. Mol. Biol.*, 383, 731-744.
32. Robert F. Fischetti, Shenglan Xu, Derek W. Yoder, Michael Becker, Venugopalan Nagarajan, Ruslan Sanishvili, Mark C. Hilgart, Sergey Stepanov, Oleg Makarov, and Janet L. Smith (2009) Mini-beam collimator enables micro-crystallography experiments on standard beamlines, *JSR* [16. -217-225](#). ~~in~~ **press**

Refereed Proceedings

1. Amador, S.M., Pachence, J.M., **Fischetti, R.**, McCauley, J.P. Jr., Smith, A.B. III, Dutton, P.L. and Blasie, J.K. (1990) X-ray Diffraction Studies of Protein Monolayers Bound to Self-Assembled Monolayers. *Materials Research Society Symposium Proceedings* 177:393-398.
2. **Fischetti, R.F.**, Xu, S. and Blasie, J.K. (1991) Development of Cation-Dependent Layer to Layer Intermolecular Correlations in 5-Bilayer Arachidic Acid Multilayers. *Materials Research Society Symposium Proceedings* 208:231-236.

3. Ivanov, I., Rosenbaum, G., Chrzas, J., **Fischetti, R.**, Segre, C. and Chapman, L.D. (2000). A Robust Cryogenic Crystal Design in Use at the APS. Synchrotron Radiation Instrumentation: Eleventh US National Conference, Am. Institute of Phys, 521:271-275.
4. Karanfil, C., Zhong, Z., Chapman, L.D., **Fischetti, R.**, Bunker, G.B., Segre, C.U., and Bunker, B.A. (2000). A Bent Laue Analyzer Detection System for Dilute Fluorescence XAFS, Synchrotron Radiation Instrumentation: Eleventh US National Conference Am. Institute of Phys. 521:178-182.
5. Xu, S., **Fischetti, R. F.** (2004) A Ray-Tracing Study of the Dependence of Focal Properties on Surface Figure Error for a Kirkpatrick-Baez (K-B) Mirror System. Synchrotron Radiation Instrumentation: Eight International Conference Am. Institute of Phys., 705: 776-770.
6. **Fischetti, R.F.**, Yoder, D.W., Xu, S., Stepanov, S., Makarov, O., Benn, R., Corcoran, S., Diete, W., Schwoerer-Boehing, M., Signorato, R., Schroeder, L., Berman, L., Viccaro, P.J., Smith, J.L. (2007) "Optical Performance of the GM/CA-CAT Canted Undulator Beamlines for Protein Crystallography," Synchrotron Radiation Instrumentation, J.-Y. Choi, S. Rah, eds., American Inst. of Phys. 754-757.
7. Xu, S., **Fischetti, R.F.**, Benn, R., Corcoran, S., (2007) "Design and Performance of the Compact YAG Imaging System for Diagnostics at GMCA Beamlines at APS.," Synchrotron Radiation Instrumentation, J.-Y. Choi, S. Rah, eds., American Inst. of Phys. 879, 1403-1406.
8. Makarov, O.A., Benn, R., Corcoran, S., Devarapalli, R., **Fischetti, R.**, Hilgart, M., Smith, W.W., Stepanov, S., and Xu, S. (2007) "EPICS controlled sample mounting robots at the GM/CA CAT", Nucl. Instr. and Meth. A, 582: 156-158.
9. S. Xu and R.F. Fischetti (2008) "Design and performance of a compact collimator at GM/CA-CAT for macromolecular crystallography" SPIE 2007. Proc. SPIE Vol. 6665-66650X P1-8.
10. Derek W. Yoder, Sergey Stepanov, Riccardo Signorato, Robert F. Fischetti (2008) Automated X-ray Focusing Using Kirkpatrick-Baez Bimorph Mirrors, Nucl. Instr. and Meth. A, (in press)

Invited Talks (as primary presenter)

Conferences

1. "Reduced Radiation Damage with a 1-micron beam", International Structural Genomics Conference, September 2008, Oxford, UK
2. "Where have all the photoelectrons gone?", Gordon Research Conference, Diffraction Methods in Structural Biology, July 2008, Lewiston, ME
3. "Reduced Absorbed Dose with Micrometer Size Beam", Radiation Damage Workshop and "Can radiation damage be reduced with a 1- μ m beam?", Microcrystallography Session, ACA Annual Meeting, June 2008, Knoxville, TN
4. "Micro-crystallography of macro-molecules", NIH/NSF Instrumentation Workshop, June 2006, Bethesda, MD
5. "GM/CA-CAT's "mini-beam" apparatus provides 7 micron beam for macromolecular crystallography", 9th International Conference on Biology and Synchrotron Radiation, August 2007, Manchester, England
6. "Micro-crystallography at the GM/CA-CAT Canted Undulator Beamlines", NSLS-II Macromolecular Crystallography Workshop, Brookhaven National Laboratory, July 18, 2007.
7. "Wide angle X-ray scattering from protein solutions: a new frontier", NSLS-II Macromolecular Crystallography Workshop, Brookhaven National Laboratory, July 18, 2007.

8. "GM/CA Canted Undulator Beamlines for Macromolecular Crystallography: Design and Performance", Petra-III Workshop on beamline design for macromolecular crystallography, April 2007, Hamburg, Germany
9. "GM/CA Canted Undulator Beamlines for Macromolecular Crystallography: Design and Performance," Canadian Light Source, June, 2006, Canadian Light Source User Meeting, Saskatoon, Canada
10. "Optical Performance of the GM/CA Canted Undulator Beamlines at the Advanced Photon Source", Synchrotron Radiation Instrumentation, May 2006, Daegu, South Korea
11. "GM/CA CAT State-of-the-art Synchrotron Beamlines for Structural Biology", NIGMS Advisory Council, September 2005, Bethesda, MD
12. "Estimating protein fold using wide-angle solution scattering data," International Union of Crystallography, August, 2005, XX Congress of the International Union of Crystallography Florence, Italy
13. "Assessing protein fold using wide-angle solution scattering data," The 8th International Conference on Biology and Synchrotron Radiation, September, 2004, Himeji, Japan

Seminars

1. "GM/CA CATs Canted Undulator Beamlines and Micro-diffraction", September 2008, Diamond Light Source, Didcot, UK
2. "GM/CA Canted Undulator Beamlines for Macromolecular Crystallography: Design and Performance", invited seminar, ACCEL Instruments, GmbH, April 2007, Cologne, Germany
3. "GM/CA-CAT Canted Undulator Beamlines for Macromolecular Crystallography: Current and Future Capabilities", APS Cross Cut Review of Biological Sciences, January 2007
4. "Cutting-Edge Beamlines for Cutting-Edge Structural Biology", NIGMS/NCI headquarters, March 2004, Bethesda, MD
5. "GM/CA CAT: Mission and Canted Undulator Beamlines", Argonne Biosciences Division, May 2002
6. "Beamlines for Macromolecular Crystallography at Modern Synchrotron Sources", February 2002, Purdue University
7. "Scientific and Technical Impact of Dual Undulator Beamlines for Protein Crystallography", NIGMS/NCI headquarters, June 2001, Bethesda, MD

Technical Accomplishments

▪ University of Pennsylvania (1977-1989)

Developed X-ray optics and instrumentation for high brilliance X-ray generator for SAXS.

Supervised one graduate student – developing X-ray interferometry/holography techniques.

▪ National Synchrotron Light Source (1987-1996)

Developed an X-ray detector for microsecond time-resolved X-ray diffraction experiments.

Enhanced the beamline X-ray optical capabilities to record XAS data from protein solutions.

Developed the methodology to study the structure and dynamics of proteins in reconstituted membranes, protein monolayers on solid substrates and at the air-water interface, and inorganic macromolecules.

Supervised one beamline scientist and one technician.

▪ Illinois Institute of Technology (1996-2001)

Developed technology to demonstrate that skeletal muscle performance is determined by myosin stroke load dependence.

Optimized beamline performance to help measure the packing structure of native collagen fibers using X-ray fiber diffraction.

Modified an existing beamline design to expand the capabilities to include X-ray scattering and X-ray Absorption Spectroscopy.

Responsible for the construction of the BioCAT insertion device beamline.

Supervised both sector and APS technicians during the construction phase.

Construction project was completed on schedule (less than two years) and under budget.

Supervised three beamline scientists and one technician during operations phase.

Implemented intensity and position feedback of the X-ray beam, significantly improved thermal stability of cryogenically cooled monochromator, developed procedures for rapid slew scans, slew EXAFS scans, and automated beamline set up.

▪ Argonne National Laboratory (2001-present)

From 2001-present, I have worked as project manager for the design, construction and operations of sector 23 at the Advanced Photon Source for the development of instrumentation for protein structure determination, a project awarded to Argonne National Laboratory by the National Institutes of General Medicine Sciences and National Cancer within the National Institutes of Health. In this capacity, I designed and obtained multiple party approvals for the first fully tunable dual-canted undulator sector in the world and supervised contract

negotiations, project report preparations, collaborative construction efforts, budget, and an assembly of 13 employees. My key activities included significant managerial effort, international travel to inspect beamline components, professional interaction with multiple funding/contractors to expedite fund transfers and progress updates, and considerable procurement QA/QC.

The timetable of key milestones in GM/CA-CAT construction, commissioning and operations are as follows:

CDR approved	December 12, 2001
MOU Signed	March 18, 2002
ACCEL build contract negotiations complete	March 7, 2003
FDR submitted	March 16, 2003
ACCEL contract signed	May 20, 2003
Undulators installed	May 2003
PDR submitted	June 18, 2003
First Light to FOE	August 2003
ID-enclosures complete	August 2003
FOE shielding validation complete	December 3, 2003
MAR CCD 225 Delivered	March 31, 2004
Phase I construction complete (optical)	April 4, 2004
BM-enclosures complete	April 7, 2004
Modified FE components installed	May 2004
Phase II construction complete (optical)	June 6, 2004
Blu-Ice Initial Implementation	July 15, 2004
Phase III construction complete (optical)	August 16, 2004
Data analysis/storage array installed	October 2004
Equipment for ID _{out} endstation procured	November, 2004
Major components for ID _{in} endstation procured	November, 2004
First protein crystal structure solved	December, 2004
Phase IV construction complete (optical)	January 3, 2005
ID _{in} commissioned	March, 2005
ID _{out} endstation installed	March, 2005
ID _{in} endstation commissioned	June, 2005
ID _{out} commissioned	December, 2005
BluIce with auto-centering	June, 2005
Phase V construction complete (optical)	March 2006
ID _{out} endstation commissioned	June, 2006
ID _{out} robotic crystal changer implemented	December, 2006
Full operations status for ID _{in}	January 2006
BM installed	June 2006
ID _{in} robotic crystal changer implemented	January 2007
Full operations status for ID _{out}	January 2007
First mini-beam user	February 2007
First 100 PDB deposits from work at GM/CA	June 2007
First 250 PDB deposits from work at GM/CA	June 2008

In addition to my responsibilities as project manager at (GM/CA-CAT) sector 23, I also designed a novel optical set-up to accurately and reproducibly measure low intensity, wide angle X-ray scattering (WAXS) patterns from proteins and macromolecular assemblies in aqueous solution.

Scientific Accomplishments

▪ University of Pennsylvania (1977-1989)

Showed that the structure of the photoproduct of carbonmonoxy-myoglobin is different from that of deoxy myoglobin via X-ray absorption spectroscopy at cryogenic temperatures.

Demonstrated the development of cation dependent layer-to-layer intermolecular correlations in ultra thin Langmuir-Blodgett multilayer films.

First to determine that an asymmetry existed in the structure of the "up-stroke" and "down-stroke" monolayers in ultra thin Langmuir-Blodgett multilayer films.

▪ National Synchrotron Light Source (1987-1996)

Determined that a single monolayer of buckminsterfullerene (C60) covalently tethered to a silicon oxide surface is organized in a primitive, planar hexagonal lattice.

▪ Argonne National Laboratory (2001-present)

Applied novel methodology to demonstrate active breathing in large proteins; showed proof-of-principle for WAXS as a possible new tool in drug discovery, and demonstrate the feasibility of using WAXS not only as a method for studying the behavior of proteins in their native non-crystalline form but as a possible method for assigning protein fold.