ROBERT F. FISCHETTI
Associate Division Director and GM/CA@APS Group Leader
X-ray Science Division, Advanced Photon Source, Argonne National Laboratory
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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

2012-present	Associate Division Director for Structural Biology and GM/CA@APS Group Leader, X-ray Science Division, Argonne National Laboratory
2007-2012	Senior Scientist and GM/CA CAT Facility Manager, 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

Awards

2010 R&D100 Award ofr the development of “Hard X-ray Uni-body Quad Collimator for Structural Biology”.

Current Research Interests

Instrumentation and methodology development 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 through-put operations.

List of Professional Activities

Membership

2002-present American Crystallographic Association

Committees

2012-present Member, EMBL Hamburg Project Evaluation Committee for Petra3 Beamlines
2011-present Member, FMX/AMX Beamline Advisory Team, NSLS-II
2011-present Member, LIX Beamline Advisory Team, NSLS-II
2010-present Member, Technical Advisory Committee for National Resource for Soft X-ray Crystallography at the APS
2008-present Member, NIH special emphasis panel for life sciences research at NSLS-II
2008-present Member, BioCARS NIH External Advisory Committee
2007-present Member, MacCHESS NIH External Advisory Committee

Past Committees

2009-2010 Member, SRI2010 Conference, Local Planning Committee
2009-2010 Member, APS XOR Strategic Planning Committee
2008-2012 Member, Scientific Advisory Board of the EMBL@PETRA3 Project
2008-2012 Chair, APS Life Sciences Council
2008-2011 Member, APS Renewal Steering Committee
2005-2008 Member, Argonne Institutional Biosafety Committee
2005-2007 Chair, IMCA-CAT External Review Board
2005-2007 Member, Protein Crystallography Beamline Advisory Panel, Australian Synchrotron Project
2005-2007 Member, APS User Data Integration Project Advisory Committee
2002-2008 Chair, APS Beamtime Allocation Committee for Macromolecular Crystallography
2002-2003 Member, Dual-Canted Undulator Front End Design Review Committee
2002-2003 Member, APS Electronic Document Management System Task Force
2001-2007 Member, LS-CAT Review Committee
2001-2002 Member, HP-CAT Technical Advisory Committee

Review Panels

2012 Member, Design Review Committee for BioMAX-PX and XAS beamlines at MAX IV, Lund, Sweden
2011 Member, NSLS-II SAC Study Panel for Biological and Medical Sciences, Brookhaven, NY
2011 Member, EMBL Hamburg Unit Review Panel, Hamburg, Germany
2010 Member, Design Review Committee for a suite of five beamlines for the National Facility for Protein Science at the Shanghai Synchrotron Radiation Facility, Shanghai, China
2009 Member, APS Cross Cut-Review Panel of Atomic, Molecular, Optical and Chemical Sciences
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	Special reviewer of SBIR phase I progress and phase II plans for the Compact Light Source, National Institute of General Medical Sciences (NIGMS)
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, 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., Mayevesky, A., **Fischetti, R**., Gramham, N. and Sorge, J. (1978) Heterogeneity of Oxygen Delivery in Normoxic and Hypoxic states: A Fluorometer Study. Am. J. Physio. 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, AF. 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 Sarcopplasmic Reticulum Membrane lnduced 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 lnitio 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.** (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. PMID: 12944630
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: 1431-1443.
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. PMID: 17942792
28. 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 β2 adrenergic G-protein-coupled receptor", Nature 450, 383-387.
29. 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. PMID: 18031757
30. Sanishvili, R., Nagarajan, V., Yoder, D., Becker, M., Xu, S., Corcoran, S., Akey, D., Smith, J.L., **Fischetti, R.F.** (2008) A 7 μm mini-beam improves diffraction data from small or imperfect crystals of macromolecules, Acta. Cryst. D. 64, 425-435. PMCID 2631116
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. PMID: 18786543
32. Fischetti, R.F., Xu, S., Yoder, D.W., Becker, M., Nagarajan V., Sanishvili, R., Hilgart, M.C., Stepanov, S., Makarov, O. and Smith, J.L. (2009) Mini-beam collimator enables micro-crystallography experiments on

standard beamlines, JSR 16, 217-225. PMCID 2725011

33. Cherezov, V., Hanson, M.A., Griffith, M.T., Hilgart, M.C., Sanishvili, R., Nagarajan, V., Stepanov, S., **Fischetti, R.F.**, Kuhn, P. and Stevens, R.C. (2009) Rastering strategy for screening and centering of microcrystal samples of human membrane proteins with a sub 10 micron size X-ray synchrotron beam, J. R. Soc. Interface, 6 Suppl 5:S587-97 PMCID 2843980
34. Stepanov, S., Makarov, O., Hilgart, M., Pothineni, S., Urakhchin, A., Devarapalli, S., Yoder, D., Becker, M., Ogata, C., Sanishvili, R., Nagarajan, V., Smith, J.L. and **Fischetti, R.F.** (2011) JBluIce-EPICS control system for macromolecular crystallography, Acta. Cryst. **D67**, 176–188 PMCID 3046456
35. Sanishvili, R., Yoder, D.W., Pothineni, S.B., Rosenbaum, G., Xu, S., Vogt, S., Stepanov, S., Makarov, O., Corcoran, S., Benn, R., Nagarajan, V., Smith, J.L. and **Fischetti, R.F.** (2011) Radiation Damage in Protein Crystals is Reduced with a Micron-Sized X-Ray Beam, Proc Natl Acad Sci U S A, **108**, 6127 - 6132www.pnas.org/cgi/doi/10.1073/pnas.1017701108 PMCID 3076849
36. Stepanov, S., Hilgart, M., Yoder, D., Makarov, O., Becker, M., Sanishvili, R., Ogata, C., Venugopalan, N., Aragão, D., Caffrey, M., Smith, J.L. and **Fischetti, R.F.** (2011) Fast fluorescence techniques for crystallography beamlines, J. Appl. Cryst., **44**, 772-778.
37. Makowski, L., Bardhan, J., Gore, D., Lal, J., Mandava, S., Park, S., Rodi, D.J., Ho, N.T., Ho, C. and **Fischetti, R.F**. (2011) WAXS studies of the structural diversity of hemoglobin in solution, J. Mol. Biol. 408, 909–921. PMID: 21420976
38. Makowski, L., Gore, D., Mandava, S., Minh, D., Park, S. Rodi, D.J. and **Fischetti, R.** (2011) X-ray solution scattering studies of the structural diversity intrinsic to protein ensembles, Biopolymers, 95, 531-542. PMID:21462170
39. Hilgart, M., Sanishvili, R., Ogata, C., Becker, M., Venugopalan, N., Stepanov, S., Makarov, O., Smith, J.L. and **Fischetti, R.F.** (2011) Automated sample scanning methods for radiation damage mitigation and diffraction-based centering of macromolecular crystals, *J. Synchrotron Rad.* **18**, 717-722 doi:10.1107/S0909049511029918
40. Makowski, L., Bardhan, J., Gore, D., Rodi, D.J. and **Fischetti, R.F**. (2012) Observation of Multi-wavelength Anomalous Diffraction using Medium Angle X-ray Solution Scattering (MADMAX) from Proteins in Solution, Biophys. J. **102**, 927-933. PMID: 22385864.
41. Micro-crystallography comes of age. J.L. Smith, R.F. Fischetti & M. Yamamoto. (2012) *Curr. Op. Struc. Biol*., 22, 602–612

Conference Proceedings (peer-reviewed)

1. Amador, S.M., Pachence, J.M., **Fischetti, R.,** McCauley, J.P. Jr., Smith, A.B. Ill, 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. Xu, S. and **Fischetti, R.F.** (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. Yoder, D., Stepanov, S., Signorato, R., **Fischetti, R.F.** (2008) "Automated X-ray Focusing Using Kirkpatrick-Baez Bimorph Mirrors", Synchrotron Radiation Instrumentation: Fifteenth Pan-American Conference, Nucl. Instr. and Meth. A, (in press)
11. **Fischetti, R.F.**, Fuoss, P.H., Gerig, R.E., Keane, D.T., Maclean, J.F., Mills, D.M., Neumann, D.A. and Srajer. G. (2010) "A Renewal Plan for the Advanced Photon Source", AIP Conference Proceedings: Tenth International Conference on Synchrotron Radiation Instrumentation (Springer, New York), Vol 1234, 171-174.
12. Xu, S., Makarov, O., Benn, R., Yoder, D.W., Stepanov, S., Becker, M., Corcoran, S., Hilgart, M., Nagarajan, V., Ogata, C., Pothineni, S., Sanishvili, R., Smith, J.L. and **Fischetti, R.F.** (2010) "Micro-Crystallography Developments at GM/CA-CAT at the APS", AIP Conference Proceedings: Tenth International Conference on Synchrotron Radiation Instrumentation (Springer, New York), Vol 1234, 905-908.
13. Yoder, D.W., Sanishvili, R., Vogt, S., Xu., S., Makarov, O., Benn. R., Corcoran, S. and **Fischetti, R.F.** (2010) "One-Micron Beams for Macromolecular Crystallography at GM/CA-CAT", AIP Conference Proceedings: Tenth International Conference on Synchrotron Radiation Instrumentation (Springer, New York), Vol 1234, 419-422.
14. Xu, S., Keefe, L.J., Mulichak, A., Yan, L., Alp, E.E., Zhao, J. and **Fischetti, R.F**. (2011) "Mini-beam Collimator Applications at the Advanced Photon Source" Nucl. Instr. and Meth. A 649, 104-106, http://www.sciencedirect.com/dx.doi.org/10.1016/j.nima.2010.11.008
15. Yoder, D.W, Makarov, O., Corcoran, S. and **Fischetti, R.F**. (2011) "PID-Feedback Control of Monochromator Thermal Stabilization" " Nucl. Instr. and Meth. A 649, 107–108 http://www.sciencedirect.com/dx.doi.org/10.1016/j.nima.2010.11.177
16. Xu, S., Nagarajan, V. and **Fischetti, R.F**. "Design and manufacture of mini-beam collimators for macromolecular crystallography at the GM/CA-CAT at APS" MEDSI-6 2010 Diamond Light Source Proceedings, Vol 1, e27, 27-30 © Diamond Light Source Ltd 2010
17. Xu, S., Nagarajan, V., Sanishvili, R. and **Fischetti, R.F.** (2011) "Alignment Protocol for Effective use of Hard X-ray Quad collimator for micro-crystallography" Proc. SPIE 8125, 81250X; doi:10.1117/12.894262
18. Liu, Z., Xu, S., Yoder, D.W. and **Fischetti, R.F.** (2011) "Simulation and optimization of a sub-micron beam for macromolecular crystallography using SHADOW and XOP at GM/CA CAT at the APS", Proc. SPIE 8129, 81290E; doi:10.1117/12.894173
19. Stepanov, S., Hilgart, M., Makarov, O., Pothineni, S. B., Yoder, D., Ogata, C., Sanishvili, R., Venugopalan, N., Becker, M., Smith, J. L., and **Fischetti, R. F**. (2012) "JBluIce-EPICS: a fast and flexible open-source beamline control system for macromolecular crystallography" Proceedings of the 11th International Conference on Synchrotron Radiation Instrumentation (accepted for publication)
20. Xu, S., Ogata, C.M., Makarov, O., Corcoran, S., Ferguson, D., and **Fischetti, R.F.** (2012) "Performance of the Compact Visual Beam Imaging system on the GM/CA BM Beamline at the

APS" Proceedings of the 11th International Conference on Synchrotron Radiation Instrumentation (accepted for publication)

21. **Fischetti, R.F.,** Yoder, D., Xu, S. Makarov, O., and Smith, J.L. (2012) "Predicted optical performance of the GM/CA@APS microfocus beamline" Proceedings of the 11th International Conference on Synchrotron Radiation Instrumentation (accepted for publication)

Book Chapter

Makowski, L., Makarov, O. A., Xu, S. and Fischetti, R. F. (2011) Wide-angle X-ray Solution Scattering. in "Methods in Protein Biochemistry" (ed. H. Tschesche) (Walter De Gruyter, GMBH, Berlin) pp 165-186.

Invited Talks (as primary presenter)

Conferences

1. "Advanced Beamline Tools Aid Structure Determination from Micron-Sized Crystals of Macromolecules and Complexes," ACA Meeting, Boston, August 2012
2. "Microcrystallography Developments and Radiation Damage Considerations," SRI, July 2012
3. "The GM/CA microfocus beamline," VMX Workshop, June 2012, Diamond Light Source, Didcot, Oxfordshire, England
4. "Radiation Damage to Protein Crystals is Reduced with a Micron-sized X-ray Beam," IUCr, August 2011, Madrid, Spain
5. "Data Collection from Nanocrystals with Reduced Radiation Damage," Science at the X-ray Diffraction Limit, June 2011, Cornell University, Ithaca
6. "Focusing near and far with Bimorphs Mirrors," 4th International workshop on Adaptive and Active X-ray and XUV Optics (ACTOP11), April 2011, Diamond Light Source Limited, Didcot, Oxfordshire, England
7. "Direct Observation of Reduced Radiation Damage with Micron-Sized X-ray Beams," 16th Pan-American Synchrotron Radiation Instrumentation Conference, September 22, 2010, Chicago
8. "Radiation Damage and Crystal Inhomogeneity with X-ray Beams of 1-15 Microns Diameter," 13th International Conference on the Crystallization of Biological Macromolecules, September 15, 2010, Dublin, Ireland
9. "Reduced radiation damage in protein crystals with micron-sized X-ray beams," July 25, 2010, ACA 2010, Chicago
10. "Micro-beam macromolecular crystallography and reduced radiation damage," 3rd International Symposium on Diffraction Structural Biology, May 28, 2010, Paris-Sud/XI University, Orsay, France
11. "Radiation damage in macromolecular crystals from one-micron X-ray beams," Synchrotron Radiation Instrumentation Conference, September 2009, Melbourne, Australia
12. "Microcrystallography and Mapping Radiation Damage with a 1-micron Beam At GM/CA-CAT," MX Frontiers at the one-micron Scale, May 2009, NSLS-II, Upton, NY
13. "Micro-Crystallogrpahy," APS Renewal Workshop, October 2008, Lisle, IL
14. "Reduced Radiation Damage with a 1-micron beam," International Structural Genomics Conference, September 2008, Oxford, UK
15. "Where have all the photoelectrons gone?," Gordon Research Conference, Diffraction Methods in Structural Biology, July 2008, Lewiston, ME
16. "Reduced Absorbed Dose with Micrometer Size Beam," Radiation Damage Workshop and "Can radiation damage be reduced with a 1-μm beam?," Microcrystallography Session, ACA Annual Meeting, June 2008,

Knoxville, TN

17. "Micro-crystallography of macro-molecules," NIH/NSF Instrumentation Workshop, June 2006, Bethesda, MD
18. "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
19. "Micro-crystallography at the GM/CA-CAT Canted Undulator Beamlines," NSLS-II Macromolecular Crystallography Workshop, Brookhaven National Laboratory, July 18, 2007.
20. "Wide angle X-ray scattering from protein solutions: a new frontier," NSLS-II Macromolecular Crystallography Workshop, Brookhaven National Laboratory, July 18, 2007.
21. "GM/CA Canted Undulator Beamlines for Macromolecular Crystallography: Design and Performance," Petra-III Workshop on beamline design for macromolecular crystallography, April 2007, Hamburg, Germany
22. "GM/CA Canted Undulator Beamlines for Macromolecular Crystallography: Design and Performance," Canadian Light Source, June, 2006, Canadian Light Source User Meeting, Saskatoon, Canada
23. "Optical Performance of the GM/CA Canted Undulator Beamlines at the Advanced Photon Source," Synchrotron Radiation Instrumentation, May 2006, Daegu, South Korea
24. "GM/CA CAT State-of-the-art Synchrotron Beamlines for Structural Biology," NIGMS Advisory Council, September 2005, Bethesda, MD
25. "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
26. "Assessing protein fold using wide-angle solution scattering data," The 8th International Conference on Biology and Synchrotron Radiation, September, 2004, Himeji, Japan

Seminars

1. "Microcrystallography Developments, GPCRs, Radiation Damage and Future Plans", October 2012, MAX-LAB, Lund, Sweden
2. "High Brilliance Synchrotrons for SAXS and WAXS," EMBO Practical Course on Solution Scattering from Macromolecules," October 2012, EMBL, Hamburg, Germany
3. "Microcrystallography and WAXS Developments, GPCRs, Radiation Damage and Future Plans," October 2012, Distinguished Lecture Series, EMBL Hamburg, Germany
4. "Radiation Damage to Protein Crystals is Reduced with Micron-Sized X-rays Beams," March 2011, CHESS, Cornell U., Ithaca, NY
5. "GM/CA CATs Canted Undulator Beamlines and Micro-diffraction," September 2008, Diamond Light Source, Didcot, UK
6. "GM/CA Canted Undulator Beamlines for Macromolecular Crystallography: Design and Performance," invited seminar, April 2007, ACCEL Instruments, GmbH, Cologne, Germany
7. "GM/CA-CAT Canted Undulator Beamlines for Macromolecular Crystallography: Current and Future Capabilities," January 2007, APS Cross Cut Review of Biological Sciences, Argonne National Laboratory
8. "Cutting-Edge Beamlines for Cutting-Edge Structural Biology," March 2004, NIGMS and NCI, NIH, Bethesda, MD
9. "GM/CA CAT: Mission and Canted Undulator Beamlines," May 2002, Biosciences Division, Argonne National Laboratory
10. "Beamlines for Macromolecular Crystallography at Modern Synchrotron Sources," February 2002, Purdue University, West Lafayette, IN
11. "Scientific and Technical Impact of Dual Undulator Beamlines for Protein Crystallography," NIGMS and NCI, NIH, June 2001, Bethesda, MD