

Flora Meilleur

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Education

- 1998 B.S. Physics & Chemistry, Université J. Fourier, Grenoble, France
- 2000 M.S. Structural Biology, Université J. Fourier, Grenoble, France
- 2004 Ph.D. Structural Biology, European Molecular Biology Laboratory & Université J. Fourier, Grenoble, France

Professional experience

- 2023-present Professor, Department of Molecular and Structural Biochemistry, North Carolina State University, Raleigh, NC, USA; Joint appointment with Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 2015-present Associate Professor, Department of Molecular and Structural Biochemistry, North Carolina State University, Raleigh, NC, USA; Joint appointment with Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 2007-2015 Assistant Professor, Department of Molecular and Structural Biochemistry, North Carolina State University, Raleigh, NC, USA; Joint appointment with Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 2007-present Neutron Scattering Scientist, Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Joint appointment with NC State Biochemistry
- 2006-2007 Research fellow, Spallation Neutron Source & Center for Structural Molecular Biology, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 2005-2006 Visiting scientist, Spallation Neutron Source & Center for Structural Molecular Biology, Oak Ridge National Laboratory, Oak Ridge, TN, USA (Sabbatical)
- 2004-2006 Physicist, Institut Laue Langevin, Grenoble, France

Professional service

Appointed position

- 2021-present Main Editor, Journal of Applied Crystallography ((number of edited papers: >120)
- 2021-present Coordinator, Neutron Scattering Division Biological Materials and Systems Initiative
- 2015-2021 Co-Editor, Journal of Applied Crystallography

Elected position

- 2019-2022 Secretary, Neutron Scattering Society of America (NSSA)

Department of Energy (DOE) facility review

2021 Reviewer, DOE Triennial Operation Review of the Advanced Light Source (ALS)

Advisory Board

2024 Member, UAH department of Biological Sciences Advisory Board

Grant review

2024, 2021 Reviewer/Panelist, NSF BIO/MCB Molecular Biophysics
 2022 Ad hoc reviewer, NSF Major Research Instrumentation (MRI) program
 2019 Ad hoc reviewer, NSF CHE Chemistry of Life Processes
 2011 Reviewer, Department of Energy, Early Career Award
 2008-2010 Reviewer, American Heart Association

Manuscript review

2010-present Ad hoc review service for:

Science, PNAS, PNAS Nexus, JACS, ACS Catalysis, Scientific Reports, Protein Science, Biochemistry, FEBS Journal, Physical Chemistry Chemical Physics, Carbohydrate Research, Australian Journal of Chemistry, IUCr Journals (IUCRj, JAC, Acta Cryst. D and F)

Special issue guest editing

2019 Guest editor, JoVE Methods Collection, Special Issue on “Neutron Scattering in the Biological Sciences: Techniques and Applications”

Professional society committee

2009-2012 Member-at-large, NSSA Executive Committee
 2007-2010 Member, SNS-HFIR User Group Executive Committee

Professional society award selection committee

2016 Member, Selection Committee for NSSA Science Prize
 2016 Member, Selection Committee for NSSA Sustained Research Prize
 2009 Member, Selection Committee for NSSA Fellows

Fellowship review

2018 Reviewer, DOE Einstein Distinguished Educator Fellowship

Professional memberships

2009-present Neutron Scattering Society of America (NSSA)
 2007-present SNS-HFIR User Group (SHUG)
 2006-present American Crystallographic Association (ACA)

Fellowships and awards

2013 ORNL Significant Event Award (Team award for the construction of the IMAGINE beamline; Role: science lead)
 2000-2004 EMBL Ph.D. Fellowship
 2000-2003 French Government Ph.D. Fellowship (merit based)
 1999-2000 French Government MSc (DEA) Fellowship (merit based)

Research support

External support at NC State

Source: Georgia State University (direct sponsor) / NIH (prime sponsor)

Title: A Single Entity Method for Controlled Nucleation and Crystal Growth

Role: key personnel Award amount: \$165,004

Period of support: 09/2023-08/2027

This award supports the development of a novel apparatus to grow protein crystals. The PI is Prof. Gangli Wang at Georgia State University (NIH award R01GM151275)

Source: Novo Nordisk Foundation

Title: Biocatalyst Interactions with Gases (BIG) Collaboration

Role: co-PI

Award amount: \$ 239,805.00

Period of support: 09/2022-08/2027

This award is to study biomaterial to efficiently immobilize active enzymes. The PI is Dr. Sonja Salmon, NC State College of Textile (total award \$6M).

External support at ORNL

Source: Department of Energy (Biopreparedness Research Virtual Environment, BraVE)

Title: "Accelerating Discovery Using DNP-enhanced Neutron Protein Crystallography"

Role: co-PI

Award amount: \$ 12M

Period of support: 10/2023-09/2026

This award supports the construction of a DNP enhanced protein crystallography diffractometer at ORNL.

External support at NC State (completed; total: \$245,612)

Source: National Science Foundation DGE1069091

Title: IGERT: Neutron Scattering for the Science and Engineering of the 21st Century

Role: co-PI

Award amount: \$245,612

Period of support: 01/2011-20/2017

This award supported the training of graduate student in neutron scattering techniques (PI Haskell Taub, University of Missouri).

Internal support at NC State (completed; total: \$4,000)

Source: NCSU Faculty Research & Professional Development Fund

Title: Structural insights into the cellulose degrading multi-domain enzyme Cellobiose Dehydrogenase

Role: PI

Award amount: \$4,000

Period of Support: 07/2015-06/2016

This award supported consumable cost for structural studies for cellobiose dehydrogenase.

External support at ORNL (completed; total: \$1,831,600)

Source: National Science Foundation CHE0922719

Title: MRI: Acquisition of a neutron single crystal diffractometer

Role: co-PI

Award amount: \$1,831,600

Period of support: 08/2009-07/2013

This award supported the installation of the IMAGINE instrument at the High Flux Isotope Reactor (PI Tibor Koritsansky, Middle Tennessee State University).

Internal support at ORNL (completed; total: \$3,633,320)

Source: ORNL Laboratory Directed Research & Development

Title: Dynamically Polarized Crystallography (DyPol) for the Second Target Station

Role: co-PI Award amount: \$2,681,320 Period of support: 10/2014-09/2017
 This award supported the development of a prototype instrument for dynamic nuclear polarization (DNP) enhanced neutron crystallography (PI Myles, ORNL)

Source: ORNL Laboratory Directed Research & Development

Title: Neutron Structural Virology

Role: PI Award amount: \$646,000 Period of support: 10/2007-09/2010

This award supported studies viruses using small angle neutron scattering.

Source: ORNL Laboratory Directed Research & Development

Title: Mapping the Protein Structure- Function-Dynamics Landscape

Role: co-PI Award amount: \$306,000 Period of support: 10/2007-09/2010

This award supported studies of protein dynamics using neutron scattering techniques. (PI Agarwal, ORNL)

Educational support

External support at NC State (completed; total: \$32,899)

Source: National Science Foundation MCB2407094

Title: 2024 Workshop on Challenges and Opportunities in Neutrons in Structural Biology

Role: PI Award amount: \$12,570 Period of support: 03/2024-03/2025

This award supported the participation of students, focusing on students from underrepresented group in STEM, to the “Challenges and Opportunities in Neutrons in Structural Biology” workshop organized by ORNL and hosted in Arlington, VA.

Source: National Science Foundation MCB1915748

Title: HFIR-SNS Advanced Neutron Diffraction and Scattering 2019 Workshop (HANDS2019)

Role: PI Award amount: \$10,329 Period of support: 04/2019-03/2022

This award supported the participation of students, focusing on students from underrepresented group in STEM, to the annual workshop on “Neutron Scattering Applications in Structural Biology” hosted at ORNL.

Source: Oak Ridge Associated Universities

Title: Course on Neutron Scattering Applications in Structural Biology

Role: PI Award amount: \$10,000 Period of support: 2011, 2012, 2014

This award supported the participation of students to the annual ONL workshop on “Neutron Scattering Applications in Structural Biology” hosted at ORNL.

External support at ORNL (completed; total: \$200,000)

Source: Oak Ridge Associated Universities, UTK-EPSCoR, UTK/ORNL Joint Institute for Neutron Scattering

Title: Neutron Scattering in Structural Biology Workshop

Role: PI Award amount: \$200,000 Period of Support: 05/2010-07/2019

This award supported the participation of students to the annual ONL workshop on “Neutron Scattering Applications in Structural Biology” hosted at ORNL.

Publications

(†supervised graduate student; \$supervised Post-Doc; †visiting graduate student; Meilleur* corresponding author)

Peer-reviewed journal articles

66. Drufva E., Cahill J.F., Saint-Vincent P., Williams A., Bocharova V., Capra N.\$, **Meilleur F.**, Carper D., Bourgery C., Miyazaki K., Yonemura M., Shiraishi Y., Parks J., Zhou M., Dishner I., Foster J., Koehler S., Valentino H., Sedova A., Kertesz V., Vasileva D., Hochanadel L., Figg A., Negoro S., Kato D.-I., Chen S.H., Michener J.K. (2024) Identification and characterization of substrate-and product-selective nylon hydrolases. *BioRxiv*.
<https://doi.org/10.1101/2024.11.14.623603>
65. Rivas-Fernández J.P., Vuillemin M., Pilgaard B., Klau L.J., Fredslund F., Lund-Hanssen C., Welner D.H., Meyer A.S., Morth J.P., **Meilleur F.**, Aachmann F.L., Rovira C., Wilkens C. Unraveling the Molecular mechanism of Polysaccharide Lyases for Efficient Alginate Degradation. *Nature Communications*. (In press)
64. Dagher S.F., Vaishnav A., Stanley C., **Meilleur F.**, Edwards B.F., Bruno-Barcena J. (2023) Structural analysis and functional evaluation of the disordered β -hexosyltransferase region from *Hamamotota (Sporobolomyces) singularis*. *Front. Bioeng. Biotechnol. Sec. Industrial Biotechnology* doi: 10.3389/fbioe.2023.1291245
63. Tandrup T.†, Lo Leggio L., **Meilleur F.*** (2023) Neutron Structure of *Lentinus similis* AA9_A at Room Temperature. *Acta Cryst. F79*: 1-7
Supervised visiting Fulbright graduate student.
62. David F., Setzler C., Sorescu A., Lieberman R.L., Meilleur F.*, Petty J.T*. (2022) Mapping H⁺ in the Nanoscale (A₂C₄)₂-Ag₈ Fluorophore. *J. Phys. Chem. Lett.* 13: 11317–11322
61. Schröder G.C.†, O'Dell W.B.†, Webb S.P., Agarwal P.K.*, and **Meilleur F.*** (2022) Capture of activated dioxygen intermediates at the copper-active site of a lytic polysaccharide monooxygenase. *Chem. Sci.* **13**, 13303-13320
Journal cover
60. Tandrup T.†, Munderspach S.J., Banerjee S., Santoni G., Ipsen J.Ø., Rollán C.H., Nørholm M., Johansen K.S., **Meilleur F.**, Leggio L.L. (2022) X-ray photoreduction of the lytic polysaccharide monooxygenase active site copper. *IUCrJ* **9**: 1-16
†Supervised visiting Fulbright graduate student from Denmark
59. Moreno-Chicano T., Carey L.M.†, Axford D., Beale J.H., Doak R.B., Duyvesteyn H.M.E., Ebrahim A., Henning R.W., Monteiro D.C.F., Myles D.A., Owada S., Sherrell D.A., Straw M.L., Srajer V., Sugimoto H., Tono K., Tosha T., Tews I., Trebbin M., Strange R.W., Weiss K.L., Worrall J.A.R., **Meilleur F.**, Owen R.L., Ghiladi R.A., Hough M.A. (2022) Complementarity of Neutron, XFEL and Synchrotron Crystallography for Defining the Structures of Metalloenzymes at Room Temperature. *IUCrJ* **9**:1-15
†Supervised visiting DOE graduate student (co-first author)
58. Correy G.J., Kneller D.W., Phillips G., Pant S., Russi S., Cohen A.E., Meigs G., Holton J.M., Gahbauer S., Thompson M.C., Ashworth A., Coates L., Kovalevsky A.Y.*, **Meilleur F.***, Fraser J.S.* (2022) The mechanisms of catalysis and ligand binding for the SARS-CoV-2 NSP3 macrodomain from neutron and X-ray diffraction at room temperature. *Science Advances* **8**:eabo5083
57. Sacco M.D., Hu Y., Gongora M.V., **Meilleur F.**, Kemp M.T., Zhang X., Wang J., and Chen Y. (2022) The P132H mutation in the main protease of Omicron SARS-CoV-2 decreases thermal

stability without compromising catalysis or small-molecule drug inhibition. *Cell Research* 32:498-500

56. Schröder G.C. † and **Meilleur F.*** (2021) Metalloprotein catalysis: structural and mechanistic insights into oxidoreductases from neutron protein crystallography. *Acta Cryst. D* **77**:1251-1269.
55. Schröder G.C. †, O'Dell W.B. †, Swartz P.D., **Meilleur F.*** (2021) Preliminary results of neutron and X-ray diffraction data collection on a lytic polysaccharide monooxygenase under reduced and acidic conditions. *Acta Cryst. F* **77**:128-133.
54. Schröder G.C. †, **Meilleur F.*** (2020) Neutron Crystallography Data Collection and Processing for Modelling Hydrogen Atoms in Protein Structures *J. Vis. Exp.* doi: 10.3791/61903.
53. Pierce J., Crow L., Cuneo M., Edwards M., Herwig K.W., Jennings A., Jones A., Li L., **Meilleur F.**, Myles D.A.A., Robertson L., Standaert R., Wonder A. Zhao J.K. (2019) A prototype system for dynamically polarized neutron protein crystallography. *Nucl Instrum Methods Phys Res A*. <https://doi.org/10.1016/j.nima.2019.06.023>
52. Lu X., Selvaraj B., Ghimire-Rijal S., Orf G.S., **Meilleur F.**, Blankenship R.E., Cuneo M.J., Myles D.A.A. (2019) Neutron and X-ray analysis of the Fenna-Matthews-Olson photosynthetic antenna complex from *Prosthecochloris aestuarii*. *Acta Cryst. F* **75**:171-175
51. Knihtila R. †, Volmar A. Y., **Meilleur F.**, Mattos C. (2019) Titration of ionizable groups in proteins using multiple neutron data sets from a single crystal: application to the small GTPase Ras. *Acta Cryst. F* **75**:111-115
50. Ashkar R. *et al.* (2018) Neutron scattering in the biological sciences: progress and prospects. *Acta Cryst. D* **74**:1129-1168
49. **Meilleur F.***, Coates L.*, Cuneo M. J., Kovalevsky A. Y., Myles D.A.A. (2018) The Neutron Macromolecular Crystallography Instruments at Oak Ridge National Laboratory: Advances, Challenges and Opportunities. *Crystals* **8**, 388
48. Coates L., Cao H. B., Chakoumakos B.C., Frontzek M.D., Hoffmann C., Kovalevsky A.Y., Liu Y., **Meilleur F.**, dos Santos A.M., Myles D.A.A., Wang X.P., Ye F. (2018) A suite-level review of the neutron single-crystal diffraction instruments at Oak Ridge National Laboratory. *Rev. Sci. Instr.* **89**, 092802
47. Haberl B., Dissanayake S., Wu Y., Myles D.A.A., dos Santos A.M., Loguillo M., Rucker G.M., Armitage D.P., Cochran M., Andrews K.M., Hoffmann C., Cao H., Matsuda M., **Meilleur F.**, Ye F., Molaison J.J., Boehler R. (2018) Next-generation diamond cell and applications to single-crystal neutron diffraction. *Rev. Sci. Instr.* **89**, 092902
46. Duff M.R., Borreguero J.M., Cuneo M., Ramanathan A., He J., Kamath G., Chennubhotla C.S., **Meilleur F.**, Howell E.E., Herwig K.W., Myles D.A.A., Agarwal P.K. (2018) Modulating enzyme activity by altering protein dynamics with solvent. *Biochemistry* **57**:4263-4275
45. Schröder G.C. †, O'Dell W.B. †, Myles D.A.A., Kovalevsky A., **Meilleur F.*** (2018) IMAGINE: neutrons reveal enzyme chemistry. *Acta Cryst. D* **74**:778-786

Supervised graduate students co-first authors

Journal front cover

44. Bodenheimer A.M. †, O'Dell W.B. †, Oliver R.C., Qian S., Stanley C.B., **Meilleur F.*** (2018) Structural investigation of cellobiose dehydrogenase IIA: Insights from small angle scattering into intra- and intermolecular electron transfer mechanisms. *Biochim. Biophys. Acta*. **1862**:1031-1039
43. Li L., Shukla S., **Meilleur F.**, Standaert R.F., Pierce J., Myles D.A., Cuneo M.J. (2017) Neutron crystallographic studies of T4 lysozyme at cryogenic temperature. *Protein Sci.* **26**:2098-2104

42. Hiromoto T., **Meilleur F.**, Shimizu R., Shibasaki C., Adachi M., Tamada T., Kuroki R. (2017) Neutron structure of the T26H mutant of T4 phage lysozyme provides insight into the catalytic activity of the mutant enzyme and how it differs from that of wild type. *Protein Sci.* **26**:1953-1963
41. Bodenheimer A.M.[†], O'Dell W.B.[†], Stanley C.B., **Meilleur F.*** (2017) Structural studies of *Neurospora crassa* LPMO9D and redox partner CDH1A using neutron crystallography and small-angle scattering. *Carbohydr. Res.* **448**:200-204
Supervised graduate students co-first authors
40. O'Dell W.B.[†], Swartz P., Weiss K., **Meilleur F.*** (2017) Crystallization of a fungal lytic polysaccharide monooxygenase expressed from glycoengineered *Pichia pastoris* for X-ray and neutron diffraction *Acta Cryst.* **F73**:70-78
39. Golden E.[¶], Yu L.G., **Meilleur F.**, Blakeley M.P., Duff A.P., Karton A., Vrielink A. (2017) An extended N-H bond driven by a conserved second order interaction orients the flavin N5 orbital in cholesterol oxidase. *Scientific Reports* **7**, Article Number 40517
38. O'Dell W. B.[†], Aggarwal P., **Meilleur F.** (2017) Oxygen Activation at the Active Site of a Fungal Lytic Polysaccharide Monooxygenase. *Angew. Chem. Int. Ed.* **56**:767-770
Journal inside cover
37. Bodenheimer A. M.[†], **Meilleur F.*** (2016) Crystal structures of wild-type *Trichoderma reesei* Cel7A catalytic domain in open and closed states. *FEBS Letters* **590**:4429-4438
36. O'Dell W.B.[†], Bodenheimer A.M.[†], **Meilleur F.*** (2016) Neutron protein crystallography: insight into enzyme chemistry. *Arch Biochem. Biophys.* **602**:48-60
35. Zhao JK, Pierce J., Myles D.A., Robertson J.L., Herwig K.W., Standaert R., Cuneo M., Li L., **Meilleur F.** (2016) Dynamically polarized samples for neutron protein crystallography at the Spallation Neutron Source. *J. Phys.: Conf. Ser.* **746**:012008
34. Knihtila R.[¶], Holzapfel G., Weiss K.L., **Meilleur F.**, Mattos C. (2015) Neutron Crystal Structure of RAS GTPase puts in question the Protonation State of the GTP γ -Phosphate. *J. Biol. Chem.* **290**:31025-31036
33. Zhuravleva M., Lindsey A., Chakoumakos B.C., Custelcean R., **Meilleur F.**, Hughes R.W., Kriven W.M., Melcher C.L. (2015) Crystal structure and thermal expansion of a CsCe₂Cl₇ scintillator. *J. Solid State Chem.* **227**:142-149
32. Golden E.[¶], Attwood P.V., Duff A.P., **Meilleur F.**, Vrielink A. (2015) Production and characterization of recombinant perdeuterated cholesterol oxidase. *Anal Biochem.* **485**:102-106
31. Bodenheimer A.M.[†], Cuneo M., Schwarz P., O'Neill H., Myles D.A.A., Evans, B., **Meilleur F.*** (2014) Crystallization and preliminary X-ray diffraction analysis of *Hypocrea jecorina* cel7a in two new crystal forms. *Acta Cryst.* **F70**:773-336
30. Munshi P.^{\$}, Snell E.H, Van der Woerd M.J., Judge R.A., Myles D.A.A., Ren Z., **Meilleur F.*** (2014) Hydrogen bonding interaction at the active site of cyclic glucose bound xylose isomerase E186Q mutant. *Acta Cryst.* **D70**:414-420
29. Gruene T., Hahn H.W., **Meilleur F.**, Sheldrick G.M. (2014) Refinement of macromolecular structures against neutron data with SHELXL-2013. *J. Appl. Cryst.* **47**:462-466
28. **Meilleur F.***, Munshi P.^{\$}, Kovalevsky A., Koritsanszky T., Blessing R., Robertson L., Stoica A.D., Crow L., Myles D.A. (2013) IMAGINE: First Neutron Protein Structure and New capabilities for neutron macromolecular crystallography. *Acta Cryst.* **D69**:2157-2160
27. Ankner J., Heller W.T., Herwig K., **Meilleur F.**, Myles D.A.A. (2013) Neutron scattering techniques and application in structural biology. *Current Protoc. Prot. Sci.* Chapter 17:Unit17.16

26. Martin S.L., He L., **Meilleur F.**, Guenther R.H., Sit T.L., Lommel S.A., Heller W.T. (2013) New insight into the structure of RNA in red clover necrotic mosaic virus and the role of divalent cations revealed by small-angle neutron scattering. *Arch Virol.* **158**:1661-1669
25. Jayasundar J.J., Ju J.H., He L., Liu D., **Meilleur F.**, Zhao J., Callaway D.J., Bu Z. (2012) Open conformation of Erzin bound to PIP2 and to F-actin revealed by neutron scattering. *J. Biol. Chem.* **44**:37119-37133
24. Myles D.A.A., Dauvergne F., Blakeley M.P., **Meilleur F.** (2012) Neutron protein crystallography at ultra- low (<15K) temperatures. *J. Appl. Cryst.* **45**:686-692
23. He L. §, Piper A., **Meilleur F.**, Hernandez R., Heller W.T., Brown D.T. (2012) Conformational changes in Sindbis virus induced by decreased pH revealed by small-angle neutron scattering. *J. Virology.* **86**:1982-1987
22. Munshi P. §, Chung S.-L., Weiss K.L., Blakeley M.P., Myles D.A.A., **Meilleur F.*** (2012) Rapid visualization of hydrogen positions in neutron crystallography structures. *Acta Cryst. D* **68**:35-41
Article highlighted in the International Union of Crystallography (IUCr) Newsletter (Volume 20, Number 1)
21. Borreguero J.M., He J., **Meilleur F.**, Weiss K.L., Brown C.M., Myles D.A.A., Herwig K.W., Agarwal P.K. (2011) Redox-Promoting Protein Motions in Rubredoxin. *J. Phys. Chem. B.* **115**:8925-8936
20. Li X., Shew C.-Y., He L., **Meilleur F.**, Myles D.A.A., Liu E., Zhang Y., Smith G., Herwig K., Pynn R., Chen W.-R. (2011) Scattering functions of Platonic solids *J. Appl. Cryst.* **44**: 545-557
19. Martin S.L., Guenther R.H., Sit T.L., Swartz P.D., Meilleur F., Lommel S.A., Rose R.B. Crystallization and preliminary X-ray diffraction analysis of red clover necrotic mosaic virus. *Acta Cryst. F* **66**:1458-1462
18. Gardberg A.S., Del Castillo A.R., Weiss K., **Meilleur F.**, Blakeley M.P., Myles D.A.A. (2010) Unambiguous determination of hydrogen atom positions: comparing results from neutron and high-resolution X-ray crystallography. *Acta Cryst. D* **66**:558-567
17. He L. §, Piper A., **Meilleur F.**, Myles D.A.A., Hernandez R., Brown D.T., Heller W.T. (2010) The structure of Sindbis virus produced from vertebrate and invertebrate hosts determined by small-angle neutron scattering. *J. Virol.* **84**:5270-5276
16. Wilkinson C., Lehmann M.S., **Meilleur F.**, Blakeley M.P., Myles D.A., Vogelmeier S., Thoms M., Walsh M., McIntyre G.J. (2009) Characterization of image plates for neutron diffraction *J. Appl. Cryst.* **42**:1-9
15. Weiss K.L., **Meilleur F.**, Blakeley M.P., Myles D.A. (2008) Preliminary neutron crystallographic analysis of selectively CH₃-protonated, deuterated rubredoxin from *Pyrococcus furiosus*. *Acta Cryst. F* **64**:537-540.
14. Teixeira S. C. et al. (2008) New sources and instrumentation from neutron in biology. *Chem. Phys.* **345**:133-151
13. Blakeley M.P., Ruiz F., Cachau R., Hazemann I., **Meilleur F.**, Mitschler A., Ginell S., Afonine P., Ventura O. N., Cousido-Siah A., Haertlein M., Joachimiak A., Myles D.A.A., Podjarny A. (2008) Quantum model of catalysis based on a mobile proton revealed by subatomic x-ray and neutron diffraction studies of h-aldose reductase. *Proc. Natl. Acad. Sci.* **105**:1844-1846
12. Di Constanzo L., Moulin M., Haertlein M., **Meilleur F.**, Christianson D.W. (2007) Expression, purification, assay, and crystal structure of perdeuterated human arginase I. *Arch. Biochem. Biophys.* **465**:82-89
11. Snell E.H., van der Woerd M.J., Damon M., Judge R.A., Myles D.A., **Meilleur F.** (2006) Optimizing crystal volume for neutron diffraction: D-Xylose Isomerase. *Eur. Biophys. J.* **35**:621-632

10. **Meilleur F.***, Myles D.A., Blakeley M.P. (2006) Neutron Laue macromolecular crystallography. *Eur. Biophys. J.* **35**:611-620
9. **Meilleur F.***, Snell E.H., van der Woerd M.J., Judge R.A., Myles D.A.A. (2006) A Quasi-Laue Neutron Crystallographic Study of D-Xylose Isomerase. *Eur. Biophys. J.* **35**:601-609
8. Blakeley M.P., Mitschler A., Hazemann I., **Meilleur F.**, Myles D.A.A., Podjarny A.D. (2006) Comparison of hydrogen determination with X-ray and neutron crystallography in a human aldose reductase-inhibitor complex. *Eur. Biophys. J.* **35**:577-583
7. Budayova-Spano M., Bonnete F., Ferte N., El Hajji M., **Meilleur F.**, Blakeley M.P., Castro B. (2006) A preliminary neutron diffraction study of rasburicase, a recombinant urate oxidase enzyme, complexed with 8-azaxanthin. *Acta Cryst.* **F62**:306-309
6. Buffet J.C., Clergeau J.F., Cooper R.G., Darpentigny J., De Laulany A., Fermon C., Fetal S., Fraga F., Guérard B., Kampmann R., Kastenmueller A., Mc Intyre G.J., Manzin G., **Meilleur F.**, Millier F., Rhodes N., Rosta L., Schooneveld E., Smith G.C., Takahashi H., Van Esch P., Van Vuure T.L. and Zeitelhack K. (2005) Advances in detectors for single crystal neutron diffraction. *Nuclear Instruments and Methods in Physics Research A* **554**:392-405
5. Hazemann I., Dauvergne M.T., Blakeley M.P., **Meilleur F.**, Haertlein M., Van Dorsselaer A., Mitschler A., Myles D.A.A. & Podjarny A.D. (2005) High-resolution neutron protein crystallography with radically small crystal volumes; application of perdeuteration to human Aldose Reductase. *Acta Cryst.* **D61**:1413-1417
4. Bennett B.C., **Meilleur F.**, Myles D.A.A., Howell E.E., Dealwis C.G. (2005) Preliminary neutron diffraction studies of Escherichia coli dihydrofolate reductase bound to the anticancer drug methotrexate. *Acta Cryst.* **D61**:574-579
3. **Meilleur F.***, Dauvergne M.T., Schlichting I., Myles D.A.A*. (2005) X-Ray crystallographic analysis of fully deuterated cytochrome P450cam. *Acta Cryst.* **D61**:539-544
2. **Meilleur F.**, Contzen J., Myles D.A.A., Jung C. (2004) Structural stability and dynamics of hydrogenated and perdeuterated cytochrome P450cam (CYP101). *Biochemistry* **43**:8744-8753
1. Adamo C., Heitzman M., **Meilleur F.**, Grand A., Cadet J. & Barone V. (2001) Interplay of intrinsic and environmental effects on the magnetic properties of free radicals issuing from H-atom addition to cytosine. *J. Am. Chem. Soc.* **123**:7113-7117

Book chapters

5. Pierce J., Cuneo M.J., Jennings A., Li L., **Meilleur F.**, Zhao J.K., Myles D.A.A. (2020) Dynamic nuclear polarization enhanced neutron crystallography: Amplifying hydrogen in biological crystals. *Methods In Enzymology*. <https://doi.org/10.1016/bs.mie.2019.11.018>
4. **Meilleur F.***, Kovalevsky A.Y., Myles D.A. (2020) IMAGINE: The Neutron Protein Crystallography Beamline at the High Flux Isotope Reactor. *Methods In Enzymology*. <https://doi.org/10.1016/bs.mie.2019.11.016>
3. **Meilleur F.**, Weiss K.L., Myles D.A. (2009) Deuterium Labeling for Neutron Structure-Function-Dynamics Analysis. *Methods in Mol. Bio.* **544**:281-292
2. **Meilleur F.**, Blakeley M.P. & Myles D.A.A. (2005). Hydrogen and hydration-sensitive structural biology. Editors Niimura N., Mizuno H., Helliwell J.R., Westhof E., pages 75-85. Neutron Laue analysis of hydrogen and hydration in protein structure.
1. Blakeley M.P., Hazemann I., Mitschler A., **Meilleur F.**, Dauvergne M.T., El Kabbani O., Cousido A., Joachimiak A., Petrova T., Myles D.A.A., Podjarny A. (2005) Hydrogen and hydration-sensitive structural biology. Editors Niimura N., Mizuno H., Helliwell J.R., Westhof E, pages 87-102.

Combined high resolution X-ray and neutron crystallography to observe protonation states in human aldose reductase

Non-peer reviewed articles

4. **Meilleur F.*** (2022) Methods Collections: Neutron Scattering in the Biological Sciences: Techniques and Applications *J. Vis. Exp.* DOI:[10.3791/64806](https://doi.org/10.3791/64806) (editorial)
3. Dawe L.N., García-Ruiz J.M., Hadju J., McIntyre G.J., **Meilleur F.**, Stephenson L. (2022) Teaching and Education highlighted. *J. Appl. Cryst.* **55**: 215-217 (editorial)
2. **Meilleur F.*** (2021) Characterization of biomass-degrading enzymes using neutron diffraction and scattering. *Neutron News* **32** (13-14) (invited contribution)
1. **Meilleur F.*** (2020) Beginner's guide to neutron macromolecular crystallography. *The Biochemist*. <https://doi.org/10.1042/BIO20200078> (invited contribution)

Educational workshop reports

7. **Meilleur F.*** (2020) ORNL hosts first virtual HANDS workshop. *Neutron News* **31**(2-4)
6. **Meilleur F.*** (2020) HANDS 2019 - A decade of neutron scattering education in structural biology at Oak Ridge National Laboratory. *Neutron News* **31**(2-4)
5. **Meilleur F.*** (2014) The Neutrons in Structural Biology Workshop celebrates its 5th Edition. *Neutron News* **25**(4):11
4. **Meilleur F.*** (2014) ORNL welcomed IMAGINE's first external users and the participants of the fourth workshop on Neutron Scattering Applications in Structural Biology. *Neutron News* **25**:12
3. **Meilleur F.*** (2013) Third school on the applications of Neutron Scattering Applications in Structural Biology, Oak Ridge, TN. *Neutron News* **24**:4
2. **Meilleur F.*** (2011) ORNL hosted second graduate course on neutron scattering applications in structural biology. *Neutron News* **22**:4-5
1. **Meilleur F.*** (2010) First graduate course on neutron scattering applications in structural biology at Oak Ridge. *Neutron News* **21**:30-31

Oral presentations

(*Invited presentations at conferences; ** Invited presentations at university/research institute seminar series or colloquiums; ^International)

76. *2023 18th International Conference on Crystallization of Biological Macromolecules, Tempe, AZ
Growing crystal for Neutron Protein Crystallography
75. **2024 Cold Spring Harbor Course on Macromolecular Crystallography, Cold Spring Harbor, NY
Neutron Crystallography – Practical considerations
74. *2024 SSRL/LCLS User Meeting, Palo Alto, CA
Neutron crystallographic studies of metalloenzymes: application to lytic polysaccharide monooxygenases
73. 2024 Challenges and opportunity in Neutron Structural Biology Workshop, Arlington, VA
Understanding metalloenzyme catalysis using Macromolecular Neutron Crystallography
72. 2024 Challenges and opportunity in Neutron Structural Biology Workshop, Arlington, VA
Neutron Crystallography – Practical considerations and structure refinement strategies
71. ** 2024 Protein Crystallography Training Workshop, Meharry Medical College, Nashville, TN
Neutron Crystallography – Practical considerations
70. **2024 Chemistry Spring Seminar Serie, Middle Tennessee State University, Murfreesboro, TN

Activation of molecular dioxygen by lytic polysaccharide monooxygenases: insights from neutron crystallography

69. **2024 Chemistry Department Spring Seminar Serie, Georgia State University, Atlanta, GA
Activation of molecular dioxygen by lytic polysaccharide monooxygenases: insights from neutron crystallography

68. **2023 Cold Spring Harbor Course on Macromolecular Crystallography, Cold Spring Harbor, NY
Neutron Crystallography – Practical considerations

67. ^*2023 20th International Conference on Biological Inorganic Chemistry, Adelaide, Australia
Activation of Molecular Dioxygen by Lytic Polysaccharide Monooxygenases

66. *2023 Brookhaven National Lab CBMS workbench series
Activation of Molecular Dioxygen by Lytic Polysaccharide Monooxygenases: Insights from Neutron Crystallography and SANS

65. **2023 Virginia Tech - ORNL Symposium on Soft Matter and Biological Physics, Blacksburg, VA
Activation of Molecular Dioxygen by Lytic Polysaccharide Monooxygenases: Insights from Neutron Crystallography and SANS” (Keynote)

64. **2023 Virginia Tech - ORNL Symposium on Soft Matter and Biological Physics, Blacksburg, VA,
Neutron Crystallography – Practical Considerations (Tutorial)

63. *2023 Gordon research Conference (Metals in Biology), Ventura, CA
Capture of activated dioxygen intermediates at the copper active site of a lytic polysaccharide monooxygenase

62. **2022 Cold Spring Harbor Course on Macromolecular Crystallography, Cold Spring Harbor, NY
Neutron Crystallography

61. **2022 University of Tennessee Knoxville, Chemistry Summer Symposium Series, Knoxville, TN
Structural Biology with Neutrons: Applications to cellulose degrading enzymes

60. 2022 American Crystallography Association Meeting, Portland, Oregon
Activated dioxygen intermediates at the copper-active site of a lytic polysaccharide monooxygenase

59. 2022 Workshop on CryoEM at ORNL, Oak Ridge National Laboratory, Oak Ridge, TN
Complementarity of Neutrons, Electrons and Photons

58. *2022 Gordon Research Conference (Diffraction methods in Structural Biology), Lewiston, MA
Massive crystals, low doses – Neutron and X-ray diffraction strategies for metalloenzymes

57. 2022 Middle Tennessee State University - REU visit to ORNL, Oak Ridge, TN
Cellulose-degrading oxidative enzymes: functional insights through neutron diffraction and scattering

56. *2021 Genomes to Structure and Function - DOE BER Workshop (Virtual)
Cellulose-degrading oxidative enzymes: functional insights through neutron diffraction and scattering

55. 2021 ORNL Neutron Advisory Board meeting (Virtual)
Bio-inspired catalysts

54. ^2021 25th Congress of the International Union of Crystallography, Prague, Czech Republic
(Hybrid)

Structural insights into the enzymatic mechanism of lytic polysaccharide monooxygenases

53. **2021 University of California San Francisco (Virtual)

Neutron Protein Crystallography: Practical Considerations

52. ^*2021 CCP4 study weekend (Virtual)

Neutron diffraction and scattering to study metalloenzyme chemistry and redox complexes

51. ^*2020 X National Congress of The Mexican Society of Crystallography (Virtual)

The mechanism of lytic polysaccharide monooxygenases: what can we learn from neutron diffraction?

50. *2020 American Conference on Neutron Scattering (Virtual)
Characterization of biomass-degrading enzymes using neutron diffraction and scattering
49. *2020 22nd National School on Neutron X-ray Scattering, Oak Ridge, TN
Science and Capabilities on IMAGINE at the HFIR
48. ^2019 Chemical Society for Canada meeting, Quebec, Canada
Cellulose-degrading oxidative enzymes: structural insights from neutron diffraction and scattering
47. **2019 Louisiana State University, Baton Rouge, LA
Cellulose-degrading oxidative enzymes: structural insights from neutron diffraction and scattering
46. **2019 CCNY, New York, NY
Cellulose-degrading oxidative enzymes: structural insights from neutron diffraction and scattering
45. ^2018 31st European Crystallographic Meeting, Oviedo, Spain
Neutron macromolecular crystallography to elucidate the mechanisms of industrial and biomedical enzymes
44. *2018 20th National School on Neutron X-ray Scattering, Oak Ridge, TN
Science and Capabilities on IMAGINE at the HFIR
43. ^*2018 “Quantum Beam Science in Biology and Soft Material Sciences” international conference, Mito, Japan
Neutron diffraction and scattering of metalloenzymes involved in the oxidative deconstruction of cellulose
42. **2018 University of Missouri, Columbia, MO
Oxidative enzymatic deconstruction of cellulose: structural insights from neutron diffraction and scattering
41. **2017 Massachusetts Institute of Technology, Cambridge, MA
Structural and functional studies of cellulolytic enzymes using neutron protein crystallography (NPC) and small angle neutron scattering (SANS)
40. *2017 8th Workshop on Applications of Neutron Scattering in Struct. Biology, Oak Ridge, TN
Radiation damage free structural studies of cellulolytic redox enzymes using neutron scattering and diffraction
39. ^**2017 Uppsala Biomedical Center, Uppsala, Sweden
Structural enzymology using neutron crystallography and small angle scattering
38. ^*2017 Swedish Neutron Scattering Society Annual Meeting Uppsala, Sweden
Structural studies of cellulolytic enzymes using neutron scattering and diffraction
37. ^*2016 1st Symposium on Lytic Polysaccharide Monooxygenases, Copenhagen, Denmark
Structural studies of cellulolytic redox enzymes using neutron scattering and diffraction
36. *2016 12th International Conference on Synchrotron Radiation, Palo Alto, CA
Radiation damage free structural studies of cellulolytic redox enzymes using neutron scattering and diffraction
35. *2016 Southeastern Regional Meeting of the American Chemistry Society, Columbia, SC
Structural studies of cellulolytic redox enzymes using neutron scattering and diffraction
34. 2016 5th International Symposium on Diffraction in Structural Biology, Knoxville, TN
IMAGINE: new capability and sciences opportunities at the HFIR
33. ^*2016 16th International Conference on Crystallization of Macromolecules, Prague, Czech Republic
Crystallization of a fungal polysaccharide monooxygenase for neutron crystallography
32. *2015 NCSU Stewards of the Future – Water for a Growing World, Raleigh, NC
Protein Crystallography for Sustainability

31. 2015 American Crystallographic Association meeting, Philadelphia, PA
Locating Hydrogen Atoms in Enzymes Using Neutron Protein Crystallography
- 29 & 30. ^*2014 RACIRI Summer School "Imaging with X-rays and Neutrons in Life and Material Sciences", Stockholm, Sweden
Lecture 1: Neutron Macromolecular Diffraction
Lecture 2: Structural biology with neutrons
28. *2014 Gordon Research Conference on Diffraction methods, Lewiston, MA
IMAGINE: new capability for neutron diffraction in the U.S.
27. 2014 American Conference on Neutron Scattering, Knoxville, TN
IMAGINE, A Quasi-Laue Single Crystal Neutron Diffractometer at the HFIR
26. 2014 American Crystallographic Association meeting, Albuquerque, NM
Recent results from the new neutron diffractometer IMAGINE
25. 2013 Oak Ridge National Laboratory, Oak Ridge, TN
The IMAGINE instrument at HFIR
24. **2013 Northeastern University, Boston, MA
Neutron Protein crystallography: application to Xylose Isomerase
23. *2013 Pittsburgh Diffraction Society Meeting, Buffalo, NY
Locating Hydrogen Atoms in Enzymes Using Neutron Protein Crystallography
22. **2013 North Carolina State University, Raleigh, NC
Protonation in protein structure and function
21. 2013 Mid-Atlantic Macromolecular Crystallography Conference, Durham, NC
Locating hydrogen atoms in enzymes using neutron protein crystallography
20. 2012 American Crystallographic Association Meeting, Boston, MA
Locating hydrogen atoms in Xylose Isomerase using neutron protein crystallography
19. **2012 University of Tennessee Science Forum, Knoxville, TN
Neutrons for Biology and Bioenergy
18. 2010 Neutron Scattering Sciences Division, ORNL, Oak Ridge, TN
Rapid visualization of deuterium atoms in Rubredoxin
17. 2009 North Carolina State University, Raleigh, NC,
Structural Biology with Neutrons
16. ^*2008 International Union of Crystallography meeting, Osaka, Japan
Neutron crystallographic analysis of deuterated and selectively CH₃-protonated deuterated rubredoxin
15. 2008 American Conference on Neutron Scattering, Santa Fe, NM, USA
IMAGINE: Supra- and Macro-molecule Quasi-Laue Neutron Diffractometer at HFIR
14. ^2007 Neutrons in Biology, Didcot, United Kingdom
Rubredoxin: H-D labeling for neutron direct methods
13. 2007 American Crystallographic Association meeting, Salt Lake City, UT, USA
The Enzymatic Mechanism of D-Xylose Isomerase Revealed by Neutron Protein Crystallography
12. ^*2007 International Workshop on Laue Diffraction in Frontier Science, Grenoble, France
Neutron Macromolecular Crystallography: Current Capabilities, Future Horizons
11. ^*2006 CNRS school "Water in biological environment", Roscoff, France
Visualisation des molécules d'eau dans une structure cristallographique aux neutrons
10. *2006 Hauptman-Woodward Institute, Buffalo, NY, USA
Neutron Macromolecular Crystallography: Application to D-xylose isomerase
9. 2006 Tennessee Structural Biology Meeting, Knoxville, TN, USA

Neutron Macromolecular Crystallography: Current Capabilities, Future Horizons

8. 2006 American Crystallographic Association meeting, Honolulu, HI, USA

Neutron cryo-crystallography

7. 2006 Spallation Neutron Source, Oak Ridge, TN, USA

Neutron macromolecular crystallography: New Horizons

6. ^2006 International Meeting for Construction and Utilization of iBIX, Hitachi, Japan

Neutron quasi-Laue crystallography at a steady state reactor

5. ^2005 International Conference on Neutron Scattering, Sydney, Australia

Neutron macromolecular crystallography with LADI

4. *2005 Neutrons in Biology, Grenoble, France

Neutron protein crystallography with LADI

3. ^*2004 European Molecular Biology Laboratory, Hamburg, Germany

Neutron macromolecular crystallography

2. **2004 Institut de Biologie Structurale, Grenoble, France

Neutron Crystallographic studies of D-xylose isomerase and cytochrome P450cam

1. *2003 Partnership for Structural Biology (PSB) Science Day, Sassenage, France

*Neutron macromolecular crystallography: visualizing protons in proteins***Panel**

1. 2022 Panelist, Science Communication Panel, Chemistry of Life Training Program Symposium, NC State

Conference organization**Conference Session Chair**

2021 71st American Crystallography Association Meeting (Virtual)

Session: Redox Enzymes by Multiple Approaches

2021 25th Congress, International Union of Crystallography, Prague, Czech Republic (Hybrid)

Session: Neutron protein crystallography

2021 MLZ Conference Neutron for Life Sciences (Virtual)

Session: Protein structure, function, and dynamics

2020 PACIFICHEM2020, Honolulu, HI (session cancelled due to pandemic)

Session: New Era of Quantum Beam in Biology

2017 24th Congress, International Union of Crystallography, Hyderabad, India

Session: Advanced neutron sources in biological and materials sciences

2013 SNS/HFIR User meeting, Oak Ridge, TN, USA

Session: Biological Sample Environment/Sample Preparation

Session: Structural Biology

2009 International Conference on Neutron Scattering, Knoxville, TN, USA

Session: Protein Structures

National and international conference organization

- 2025 7th International Symposium on Diffraction Structural Biology, Grenoble, France
Role: Member of the International Advisory Committee
- 2024 Grand Challenges in Neutron Sciences, Arlington, VA
Role: Role: Member of the Local Organization and Program Committee
- 2024 Grand Challenges in Neutron Structural Biology, Arlington, VA
Role: Conference organizer
- 2022 International Conference on Neutron Scattering, Buenos Aires, Argentina
Role: Member of the International Program Committee
- 2020 American Conference on Neutron Scattering (Virtual)
Role: Secretary of the organizing society (NSSA)
- 2019 6th International Symposium on Diffraction Structural Biology, Osaka, Japan
Role: Member of the International Advisory Committee
- 2016 5th International Symposium on Diffraction Structural Biology, Knoxville, TN
Role: Member of the Local Organization and Program Committee
- 2015 ORNL Neutron Workshop at Duke, Durham, NC
Role: Member of the Workshop Organization Committee
- 2015 Second Target Station Workshop, Oak Ridge, TN
Role: Member of the Program Advisory Committee

Teaching experience**Current**

- 2019-present BCH 701 (NC State Biochemistry; Macromolecular Structure; Fall semester; 15 lectures)
- 2019-present BCH 590 (NC State Biochemistry; Experimental Design and Analysis; Fall 2019, Fall 2021, Fall 2022; 3 lectures)
- 2020, 2022 AgBioFEWS (NC State Interdisciplinary NSF Research traineeship; One guest lecture on Rosalind Franklin's contribution to solving the structure of DNA)

Past

- 2011-2019 BCH 705 (NC State Biochemistry; Molecular biology of the cell; Spring semester; 15 lectures)
- 2012, 2015 NSF IGERT (University of Missouri Physics; 5 lectures)

Educational workshop organization

- 2020-2021 Director, Virtual HFIR/SNS Advanced Neutron Diffraction and Scattering (HANDS)
- 2019 Director, HFIR/SNS Advanced Neutron Diffraction and Scattering (HANDS)
- 2010-2018 Director, Neutrons in Structural Biology

Postdoctoral associates

Nikolas Capra (2024-Present)

Chathurika Kosgallana (2024-Present)

Partha P. Munshi (2010-2012), currently Associate professor and department chair, Shiv Nadar University

Lilin He (2008-2010), currently neutron scattering scientist, ORNL

Yiming Mo (2008-2009), currently Sr Data Warehouse Developer, Assurant Inc)

Graduate students trained

Gabriela Schröder (2015-2021, Ph.D.)

Thesis title: Dissecting Metalloprotein Chemistry: Characterization of a Copper Containing Lytic Polysaccharide Monooxygenase and a Heme Cytochrome P450 using X-ray and Neutron Scattering.

Currently Post-Doctoral Research Associate, Norwegian University of Life Sciences, Norway

Wm Brad O'Dell (2012-2017, Ph.D.)

Thesis title: Structural Investigations of the Fungal Lytic Polysaccharide Monooxygenase Reaction Mechanism using X-ray and Neutron Protein Crystallography.

Currently Biologist, National Institute of Standards and Technology

Annette Bodenheimer (2011-2016, Ph.D)

Thesis title: Structural Characterization of the Fungal Cellulose Degrading Enzymes Cel7A and Cellobiose Dehydrogenase IIA.

Currently Senior Scientist, Pfizer

Graduate students hosted at ORNL:

Andy Dorfeuille, GEM Graduate Student, Summer 2021, MIT (virtual internship)

Xavier Salas Sola, GEM Graduate Student, Summer 2021, Penn State (virtual internship)

Tobias Tandrup, Fulbright Graduate Student, February 2019, August - December 2019, University of Copenhagen

Leiah Carey, DOE Graduate Student Program, January 2016-October 2016, NCSU (Chemistry)

Stephen Keable, DOE Graduate Student Program, March 2015-May 2015, Montana State University

Graduate thesis committees

Current

1. Sam Miller (NCSU/Biochemistry; role: Chair)
2. Hannah Gehring (NCSU/Biochemistry; role: Departmental Member)
3. Youngwoo Hwang (NCSU/Textile; role: Graduate School Representative)

Former

21. Madison Moore (NCSU/Plant and Microbial Biology/Functional Genomics; role: external member & Graduate School Representative)
20. Priscilla Baum (NCSU/Biochemistry; role: departmental member)
19. Tess Overton (NCSU/Biological Sciences; role: external member)
18. Hayden Baer (NCSU/Biochemistry; role: departmental member)
17. Suman Das, Ph.D. 2022 (NCSU/Biochemistry; role: departmental member)
16. Christopher Lassiter, M.R. 2022 (NCSU/Biochemistry; role: departmental member)

15. Gabriela Schroder, Ph.D. 2021 (NCSU/Biochemistry; role: chair)
14. Olivia Manley, Ph.D. 2021 (NCSU/Biochemistry; role: departmental member)
13. Yue Yuan, Ph.D. 2021 (NCSU/TECHS; role: external member)
12. Donna Liebelt, M.S. 2020 (NCSU/Biochemistry; role: departmental member)
11. Maddison Davidson, Ph.D. 2020 (NCSU/Chemistry; role: external member and Graduate School Representative)
10. Sophia Yang, Ph.D. 2019 (NCSU/Biochemistry; role: departmental member)
9. Paul Enriquez, Ph.D. 2019 (NCSU/Biochemistry; role: departmental member)
8. Eric Waddell, M.S. 2018 (NCSU/Biochemistry; role: departmental member)
7. Robert Grinshpon, Ph.D. 2017 (NCSU/Biochemistry; role: departmental member)
6. Wm Brad O'Dell, Ph.D. 2017 (NCSU/Biochemistry; role: chair)
5. Melvin Thomas, Ph.D. 2017 (NCSU/Biochemistry; role: departmental member)
4. Walter Sandoval Espinola, Ph.D. 2015 (NCSU/Plant and Microbial Biology; role: Graduate School Representative)
3. Annette Bodenheimer, Ph.D. 2015 (NCSU/Biochemistry; role: chair)
2. Sue Feticks, Ph.D. 2012 (NCSU/Biochemistry; role: departmental member)
1. Craig Helstowski, Ph.D. 2011 (UT Knoxville; role: external member)

Dissertation Committee at external institutions

2. Swati Aggarwal (2021), Université Grenoble-Alpes (role: rapporteur/opponent)
1. Ryan Knihtila (2015), Northeastern University (role: external member)

Undergraduates trained

Jo-Yann Tremolet de Villers, 2022 (NCSU, Sophomore)
 Melissa Fee, 2015 (NCSU, Sophomore)
 Oksana Samarski, 2009-2012 (NCSU, Sophomore, senior)
 Tabitha Donald, 2010 (Lane College, Senior)
 Sun-Lin Chung, 2010 (Yale, Freshman)
 Jillian Reich, 2009 (St Lawrence, Sophomore)
 Richard Goslen, 2008-2009 (NCSU, Junior, Senior)
 Lisa Gilligan, 2007 (NCSU, Senior)
 Hung Dang, 2007 (NCSU, Sophomore)
 Jia Kim, 2007 (NCSU, Sophomore)

Institutional service

NC State

2020-present Co-coordinator, Biochemistry Dept. seminar series
 2018-present Chair, METRIC X-ray User Committee
 2023 Member, College of Agriculture and Life Sciences Strategic planning - Sustainability Taskforce
 2023 Chair, College of Agriculture and Life Sciences Strategic planning - Sustainability Research Taskforce
 2020-2021 Chair, Biochemistry Dept. Post-Tenure Review committee
 2017-2021 Reviewer, College of Agriculture and Life Sciences (CALS) Undergraduate Scholarships
 2019-2020 Member, Biochemistry Dept. Faculty Search Committee

- 2018-2019 Member, Biochemistry Dept. Graduate Curriculum Committee
- 2016-2018 Webmaster, Biochemistry Dept. Webpage
- 2016 Member, Biochemistry Dept. Head Search Committee
- 2014-2015 Member, Graduate Student Recruiting Committee
- 2014 Reviewer, Dean's Enrichment Grants Program (NC State CALS)
- 2010 Internal Reviewer, NIH (U19): Linking Physical and Chemical Properties to Biology

ORNL

- 2020-present Member, ORNL Educational Program Committee
- 2022 Member, ORNL Neutron Scattering Division Student Program Committee
- 2021 Member, STS Instrument Scientist Search Committee
- 2011; 2016 Mentor, Appalachian Region. Comm. (ARC)/ORNL Math-Science-Tech. Institute
- 2007-2017 Chair, Instrument Advisory Team (IAT) for the construction of a quasi-Laue diffractometer at the High Flux Isotope Reactor at Oak Ridge National Laboratory
- 2007-2009 Member, Neutron Sciences Directorate Education Committee

Outreach activities

Women in STEM Outreach activities

1. Women's Group Coffee Hour, hosted by the Oak Ridge Postgraduate Association (ORPA) (2017)

K-12 STEM Outreach Activities

- 2017 TN STEAM Festival Knoxville
 - Objective: Elementary School Science Fair
 - Role: Outreach volunteer
- 2017 DOE/ORNL STEM Mentoring Café, Oak Ridge High School
 - Objective: Educate students (primarily from underrepresented populations in STEM fields) on the exciting careers of STEM professionals.
 - Role: Mentor
- 2017 Hour of Code, Oak Ridge Elementary School
 - Objective: Provide coding experience to elementary school students
 - Role: Assisted 3 elementary school teachers through coding exercises; Introduced my career in STEM

General public events

- 2018 ORNL Open House
 - Objective: Community outreach
 - Role: HFIR tour guide
- 2013 Oak Ridge's Secret City Festival – Volunteer at Spallation Neutron Source simulator exhibit.
 - Objective: Community outreach
 - Role: Introduced how neutrons can be used in biological research to the public

Women in STEM – Interviews

1. Exploring the Chemistry of Proteins: A Conversation with Dr. Flora Meilleur (2021)
<https://www.jove.com/blog/educator-blog/exploring-the-chemistry-of-proteins-a-conversation-with-dr-flora-meilleur/>

2. Women in Neutron Sciences (2016)

<https://neutronsources.org/women-in-science/women-in-neutron-science/flora-meilleur/>

Press releases

12. Chasing Better Biofuels: Biochemistry's Flora Meilleur (2019) <https://cals.ncsu.edu/molecular-and-structural-biochemistry/news/chasing-better-biofuels-biochemistrys-flora-meilleur/>

11. Doctoral student creating "scrubber" textiles discovers neutron analysis techniques at ORNL (2019) <https://neutrons.ornl.gov/content/doctoral-student-creating-%E2%80%9Cscrubber%E2%80%9D-textiles-discovers-neutron-analysis-techniques-ornl>

10. Spinach Used in Neutron Studies Could Unearth Secret to Stronger Plant Growth (2018) <https://neutrons.ornl.gov/content/spinach-used-neutron-studies-could-unearth-secret-stronger-plant-growth>

9. 'On your mark, get set' Neutrons run enzyme's reactivity for better biofuel production (2017) <https://www.ornl.gov/news/your-mark-get-set>

8. Imagine finalizes cryogenic sample environment (2016) <https://neutrons.ornl.gov/content/imagine-finalizes-cryogenic-sample-environment>

7. ORNL hosts Seventh Annual Neutron Scattering School on Structural Biology (2016) <https://neutrons.ornl.gov/content/ornl-hosts-seventh-annual-neutron-scattering-school-structural-biology>

6. High school teacher mentoring: Summer Science <https://www.ornl.gov/news/summer-science> (2016)

5. Joint NCSU-ORNL faculty position: Best of Both Worlds (2015) <https://www.ornl.gov/news/best-both-worlds>

4. IMAGINE beam line at HFIR welcomes first external user (2013) <https://www.ornl.gov/news/imagine-beam-line-hfir-welcomes-first-external-user>

3. Neutrons Go Viral (2011) <https://www.ornl.gov/news/neutrons-go-viral-ornl>

2. New graduate course utilizes neutron scattering techniques to study structural biology (2010) <http://www.ornl.gov/university-partnerships/>

1. Successful Neutron-Scattering Proposal (2009) <http://news-from-mtsu.blogspot.com/2009/09/075-mtsu-chemistry-researcher.html>