**Flora Meilleur**

Associate Professor Neutron Scattering Scientist

Molecular and Structural Biochemistry Neutron Scattering Division

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<https://www.ornl.gov/staff-profile/flora-meilleur>

**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**

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

2004-2006 Physicist, Institut Laue Langevin, Grenoble, France

**Professional service**

**Elected position**

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

**Appointed position**

2021-present Main Editor, Journal of Applied Crystallography

2021-present Coordinator, Neutron Scattering Division Biological Materials and Systems Initiative

2015-2021 Co-Editor, Journal of Applied Crystallography (number of edited papers: >85)

**Department of Energy (DOE) facility review**

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

**Grant review**

2022 Ad hoc reviewer, NSF Major Research Instrumentation (MRI) program

2021 Reviewer/Panelist, NSF BIO/MCB Molecular Biophysics

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, 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**

2019Guest 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 Followship

**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 (current)**

**Source:** ORNL/UT-Battelle

Title: Joint faculty appointment for Flora Meilleur

Role: Joint faculty (50% effort)

Period of support: 03/2007-present

This project supports my research program and activities as a neutron scattering scientist.

**Source:** ORNL/UT-Battelle

Title: Graduate Opportunity (GO!) Program at ORNL

Role: PI

Period of support: 08/2014-present

This project supports NC State Biochemistry graduate students to conduct research in residence at ORNL.

**Source:** Novo Nordisk Foundation

Title: Biocatalyst Interactions with Gases (BIG) Collaboration

Role: co-PI (PI Sonja Salmon, NC State)

Period of support: 09/2022-08/2027

**External support at NC State (completed)**

**Source**: National Science Foundation DGE1069091

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

Role: co-PI (PI Haskell Taub, University of Missouri)

Period of support: 01/2011-20/2017

**Internal support at NC State (completed)**

**Source**: NCSU Faculty Research & Professional Development Fund

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

Role: PI

Period of Support: 07/2015-06/2016

**External support at ORNL (completed)**

**Source**: National Science Foundation CHE0922719

Title: MRI: Acquisition of a neutron single crystal diffractometer

Role: co-PI (PI Koritsansky, Middle Tennessee State University)

Period of support: 08/2009-07/2013

**Internal support at ORNL (completed)**

**Source**: ORNL Laboratory Directed Research & Development

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

Role: co-PI (PI Myles, ORNL)

Period of support: 10/2014-09/2017

**Source**: ORNL Laboratory Directed Research & Development

Title: Neutron Structural Virology

Role: PI (co-PI Brown, NC State Biochemistry)

Period of support: 10/2007-09/2010

**Source**: ORNL Laboratory Directed Research & Development

Title: Mapping the Protein Structure- Function-Dynamics Landscape

Role: co-PI (PI Agarwal, ORNL)

Period of support: 10/2007-09/2010

**Educational support**

**External support at NC State (completed)**

**Source**: National Science Foundation MCB1915748

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

Role: PI

Period of support: 04/2019-03/2022

**Source**: Oak Ridge Associated Universities

Title: Course on Neutron Scattering Applications in Structural Biology

Role: PI

Period of support: 2011, 2012, 2014

**External support at ORNL (completed)**

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

Title: Neutron Scattering in Structural Biology Workshop

Role: PI

Period of Support: 05/2010-07/2019

**Publications**

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

**Peer-reviewed journal articles**

63.Tandrup T.¶, Lo Leggio L., **Meilleur. F.\*** (2023) Neutron Structure of *Lentinus similis* AA9\_A at Room Temperature. *Acta Cryst. F***79**: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. Let.* 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.¶, Muderspach 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](https://www.jove.com/v/61903/neutron-crystallography-data-collection-processing-for-modelling).

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., Shibazaki 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 CDHIIA 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.* F**73**: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.* F**70**: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.* D**70**: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.* D**69:**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.* F**62**: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*. D**61**: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.* D**61**: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.* D**61:**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

*Publications under revision*

1. Dagher S.F., Vaishnav A., Stanley C.B., **Meilleur F.**, Edwards B.F.P., Bruno-Bárcena J.M. Structural analysis and functional evaluation of the disordered ß–hexosyltransferase regions from *Hamamotoa (Sporobolomyces) singularis* (Submitted to *Journal of Biological Chemistry*)

**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.* In press. (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)

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, Porland, 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**

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 trained**

Partha P. Munshi (2010-2012), currently Associate professor and department chair, Shiv Nadir 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, the University of the Free State, South Africa

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**

4. Priscilla Baum ((NCSU/Biochemistry; role: departmental member)

3. Madison Moore (NCSU/Plant and Microbial Biology/Functional Genomics; role: external member & Graduate School Representative)

2. Tess Overton (NCSU/Biological Sciences; role: external member)

1. Hayden Baer (NCSU/Biochemistry; role: departmental member)

**Former**

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 ttttttSchool 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 ttttSchool Representative)

3. Annette Bodenheimer, Ph.D. 2015 (NCSU/Biochemistry; role: chair)

2. Sue Fetics, 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**

Joseph-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

2017-present Reviewer, College of Agriculture and Life Sciences (CALS) Undergraduate Scholarships

2020-2021 Chair, Biochemistry Dept. Post-Tenure Review committee

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**

2022 Member, ORNL Neutron Scattering Division Student Program Committee

2020-present Member, ORNL Educational 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 – 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/*](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/*](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/*](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*](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*](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*](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*](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*](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*](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*](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*](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*](https://www.ornl.gov/news/neutrons-go-viral-ornl)

2.   New graduate course utilizes neutron scattering techniques to study structural biology (2010)

[*http://www.orau.org/university-partnerships/*](http://www.orau.org/university-partnerships/)

1.   Successful Neutron-Scattering Proposal (2009)

[*http://news-from-mtsu.blogspot.com/2009/09/075-mtsu-chemistry-researcher.html*](http://news-from-mtsu.blogspot.com/2009/09/075-mtsu-chemistry-researcher.html)

**General public events**

2018ORNL Open House

Objective: Community outreach

Role: HFIR tour guide

2017 TN STEAM Festival Knoxville

Objective: Elementary School Science Fair

Role: Outreach volunteer

2017 DOE/ORNL STEM Mentoring Café, Oka 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

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