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## **Professional Experience**

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|-------------------|--|
| 2/2023 – present  | Director, Neutron Technologies Division,<br>Neutron Sciences Directorate, Oak Ridge National Laboratory                            |
| 11/2020 – 1/2023  | Section Head, SNS Beamline Operations, Neutron Scattering Division,<br>Neutron Sciences Directorate, Oak Ridge National Laboratory |
| 10/2018 – 10/2020 | Technical Project Manager, Neutron Technologies Division,<br>Neutron Sciences Directorate, Oak Ridge National Laboratory           |
| 1/2018 – 9/2018   | Director, Neutron Scattering Division, Neutron Sciences Directorate,<br>Oak Ridge National Laboratory                              |
| 3/2015 – 12/2017  | Director, Chemical and Engineering Materials Division,<br>Neutron Sciences Directorate, Oak Ridge National Laboratory              |
| 8/2009 – 2/2015   | Group Leader, Research Facility Operations, NIST Center for Neutron<br>Research, National Institute for Standards & Technology     |
| 7/2012 – 2/2015   | Joint Faculty Appointment Senior Research Scientist,<br>Dept. of Materials Science and Eng. University of Maryland                 |
| 3/2009 – 6/2012   | Joint Faculty Appointment Associate Research Scientist,<br>Dept. of Materials Science and Eng. University of Maryland              |
| 2003 – 2009       | Senior Staff Scientist, ISIS Facility, Rutherford Appleton Laboratory, UK  |
| 1987 – 2003       | Staff Scientist, ISIS Facility, Rutherford Appleton Laboratory, UK   |

## **Track Record**

Prior to joining the Neutron Sciences Directorate in 2015, I was head of the Research Facility Operations Group (RFO) at the NIST Center for Neutron Research. The group comprised a 50-plus staff cohort of scientists, engineers, and technicians responsible for operations, maintenance, development, and installation of the center's suite of neutron scattering instruments. The group worked closely with the center's Neutron Condensed Matter Science Group to support both in-house and user-driven research activities. During my tenure, the RFO group was also heavily involved in planning for and successfully executing the center's 5-year \$95 M project to expand its cold neutron measurement capabilities with the installation of a new cold source and five additional supermirror guides and instrumentation.

Before moving to the U.S., I worked for many years at the ISIS spallation neutron source, Rutherford Appleton Laboratory, U.K., as a staff scientist in the Crystallography Group, with overall responsibility for operation and development of the High Resolution Powder Diffractometer (HRPD). I led a series of major upgrades on HRPD, including the design and installation of new detector arrays and of a 100 m long supermirror ballistic guide and played a central role in the ISIS project team which designed and built the medium-resolution General Materials diffractometer (GEM).

Past research interests include application of high-resolution neutron and X-ray powder diffraction in the study of molecular crystals, including phase transition studies and structure determination, and in the structure-property and processing relations in dielectric oxide ceramics.

My peer-reviewed publications include over 160 papers (h-index >40 with over 7000 citations) on these subjects (see below). The use and development of neutron and X-ray synchrotron powder diffraction techniques and sample environments was also a major component of this research.

### **Education**

|                           |                                  |            |
|---------------------------|----------------------------------|------------|
| University of Durham, UK  | Geology (Physics & Math subsid.) | B.Sc. 1986 |
| University of Reading, UK | Physics                          | Ph.D. 1993 |

### **Synergistic Activities**

NIST Center for Neutron Research Upgrade Review Committee (2019 – present)

UK Neutron Strategic Review panel member, Science and Technology Facilities Council (STFC), United Kingdom, 2016-2017.

American Conference on Neutron Scattering, Co-chair Sources, Instrumentation and Software session, 2014.

Editorial Board for Journal of Neutron Research

Past member of experimental proposal review committees of national user facilities including ISIS, NIST, and SNS/HFIR.

### **Professional Memberships**

Neutron Scattering Society of America

British Crystallographic Association

## Publications

<http://orcid.org/0000-0003-0007-706X>

ResearcherID: P-8397-2015

*Discover: a total scattering diffractometer for materials research at the SNS*, K. Page, P. Metz, T. Huegle, G. Rennich, V. Graves, A. Jones, T. Proffen, R. Ibberson, M. Tucker, *Acta Cryst*, **A77**, a270 (2021)

*Selection of silicon photomultipliers for a  ${}^6\text{LiF}:\text{ZnS}(\text{Ag})$  scintillator based cold neutron detector*, A. Osovizky, K. Pritchard, Y. Yehuda-Zada, J.B. Ziegler, P. Tsai, M. Ghelman, A.K. Thompson, R.M. Ibberson, G.M. Baltic, C.F. Majkrzak, N.C. Maliszewskyj, *J. Phys. Commun.* **2** (2018) 045009, DOI 10.1088/2399-6528/aab381

*Optimization of  ${}^6\text{LiF}:\text{ZnS}(\text{Ag})$  scintillator light yield using GEANT4*, Y. Yehuda-Zada, K. Pritchard, J.B. Ziegler, C. Cooksey, K. Siebein, M. Jackson, C. Hurlbut, Y. Kadmon, Y. Cohen, R.M. Ibberson, C.F. Majkrzak, N.C. Maliszewskyj, I. Orion, A. Osovizky, *Nucl. Inst. Meth.* **A892**, 59-69 (2018), DOI10.1016/j.nima.2018.02.099

*Spin glass behavior in frustrated quantum spin system  $\text{CuAl}_2\text{O}_4$  with a possible orbital liquid state*, R. Nirmala, K. – H. Jang, H. Sim, H. Cho, J. Lee, N. –G. Yang, S. Lee, R.M. Ibberson, K. Kakurai, M. Matsuda, S.-W. Cheong, V.V. Gapontsev, S.V. Streltsov, and J.-G. Park, *J. Phys. Condensed Matter*, **29**, (2017), DOI 10.1088/1361-648X/aa5c72

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*Polychromatic energy-dispersive neutron diffraction at a continuous source*, J.M. Simmons, J.C. Cook, R.M. Ibberson, C.F. Majkrzak, and D.A. Neumann, *J. Appl. Cryst*, **46**, 1347-1352, (2013)

*A novel isomorphic phase transition in beta-pyrochlore oxide  $\text{KOs}_2\text{O}_6$ : a study using high resolution neutron powder diffraction*, K. Sasai, M. Kofu, R.M. Ibberson, K. Hirota, J. Yamaura, Z. Hiroi, and O. Yamamuro, *J. Phys. Condens. Matter*, **22**, 015403 (2010)

*Structure determination of alpha- $\text{La}_6\text{W}_2\text{O}_{15}$* , M.H. Chambrier, R.M. Ibberson, and F. Goutenoire, *J. Solid State Res.*, **183**, 1297-1302 (2010)

*Structural characterization of a coarse-grained transparent silicon carbide powder by a combination of powder diffraction techniques*, B. Peplinski, A.N. Fitch, A. Evans, Ibberson, R.M., D.M. Toebebens, L.M.D. Cranswick, I. Doerfel, F. Emmerling, and R. Matschat, *Z. Kristallogr.*, **Suppl. 30**, part 1, 61-66 (2009)

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*Structure and phase behaviour of the expanded metal compound  ${}^7\text{Li}(\text{ND}_3)_4$* , R.M. Ibberson, A.J. Fowkes, M.J. Rosseinsky, W.I.F. David, and P.P. Edwards, *Angew. Chem. Int. Ed.*, **48**, 1435-1438 (2009)

*Design and performance of the new supermirror guide on HRPD at ISIS*, R.M. Ibberson, *Nucl. Inst. Meth. A*, **600**, 47-49 (2009)

*Isotopic polymorphism in pyridine*, S. Crawford, M.T. Kirchner, D. Bläser, R. Boese, W.I.F. David, A. Dawson, A. Gehrke, R.M. Ibberson, W.G. Marshall, S. Parsons, and O. Yamamuro, *Angew. Chem. Int. Ed.*, **48**, 755-757 (2009)

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- Solid-state structures of the covalent hydrides germane and stannane*, I.J. Maley, D.H. Brown, R.M. Ibberson, and C.R. Pulham, *Acta Cryst.*, **B64**, 312-315 (2008)
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- Crystal structures and glass phase transition behaviour of cyclohexene*, R.M. Ibberson, M.T.F. Telling, and S. Parsons, *Cryst. Growth Des.*, **8**, 512-518 (2008)
- Polymorphism in cyclohexanol*, R.M. Ibberson, S. Parsons, D.R. Allan, and A.M.T. Bell, *Acta Cryst.*, **B64**, 573-582 (2008)
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- Search for the X-phase in poled PZN-PT using very high-resolution single-crystal neutron diffraction*, E. H. Kisi, J. S. Forrester, C. J. Howard, and R. M. Ibberson, *J. Phys. Condens. Matter*, **19**, 232201 (2007)
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- Neutron powder diffraction studies of perdeuterodimethyl sulfone.*, R.M. Ibberson, *Acta Cryst.*, **C63**, o292-o294 (2007)
- Tetragonal superstructure and thermal history of  $Li_{0.3}La_{0.567}TiO_3$  (LLTO) solid electrolyte by neutron diffraction*, M. Catti, M. Sommariva, and R. M. Ibberson, *J. Mater. Chem.*, **17**, 1300-1307 (2007)
- A neutron powder diffraction study of Fe and Ni distributions in synthetic pentlandite and violarite using  $Ni^{60}$  isotope*, C. Tenailleau, B. Etschmann, R. M. Ibberson, and A. Pring, *Am. Min.*, **91**, 1442-1447 (2006)
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- The crystal structures and phase behaviour of cyclohexene oxide*, R. M. Ibberson, O. Yamamuro, and I. Tsukushi, *Chem. Phys. Lett.*, **423**, 454-458 (2006)
- Structure determination and phase transition behaviour of dimethyl sulfate*, R. M. Ibberson, M. T. F. Telling, and S. Parsons, *Acta Cryst.*, **B62**, 280-286 (2006)

*In situ neutron and X-ray powder diffraction study of cation ordering and domain growth in the dielectric ceramic  $Ba_3ZnTa_2O_9$ - $Sr_2GaTaO_6$* , R. M. Ibberson, S. M. Moussa, M. J. Rosseinsky, A. N. Fitch, D. Iddles, and T. Price, *J. Am. Ceram. Soc.*, **89**, 1827-1833 (2006)

*The low-temperature phase III structure and phase transition behaviour of cyclohexanone*, R. M. Ibberson, *Acta Cryst.*, **B62**, 592-598 (2006)

*Neutron diffraction studies of  $U_4O_9$ : Comparison with EXAFS results*, F. Garrido, A. C. Hannon, R. M. Ibberson, L. Nowicki, and B. T. M. Willis, *Inorg. Chem.*, **45**, 8408-8413 (2006)

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*Single-crystal X-ray and neutron powder diffraction investigation of the phase transition in tetrachlorobenzene*, S. A. Barnett, C. K. Broder, K. Shankland, W. I. F. David, R. M. Ibberson, and D. A. Tocher, *Acta Cryst.*, **B62**, 287-295 (2006)

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