Murphy, Bridget, Privat Docent Dr.

female Christian-Albrechts-Universität zu Kiel (CAU)
Ruprecht Haensel Laboratory/Institute of Experimental and Applied Physics

Group Leader (permanent) on secondment to TU Dortmund (W3 Experimental Physics)

Research Topics

- Structure and dynamics of soft and hard matter interfaces
- Strain and strain coupling at solid interfaces
- Growth processes at liquid –liquid interfaces
- Method and instrument development for X-ray science

Planned DELTA Topics

- Small angle scattering in photoswitchable membranes
- X-ray diffraction and X-ray pair distribution studies of amorphous-crystalline phase transitions in ferroelectric thin films

NFDI –Daphne activities

- Collection of metadata so that the measured data is reusable
- Searchable curated databases of raw, intermediate and processed data
- Develop a curated repository of managed software to re-use the data
- Education and training in research data management.

Selected Scientific Functions

Since 2022	Joint speaker for “DAta from PHoton and Neutron Experiments for NFDI” DAPHNE4NFDI
Since 2018	European Synchrotron Radiation Facility (ESRF) German Council representative
Since 2016	Deutsches Elektronen Synchrotron Council member
Since 2020	Member of German Committee for Committee Research with Synchrotron Radiation Resource: Europe
2017- 2020	Chair of the German Committee for Committee Research with Synchrotron Radiation
Since 2017	Member of German-Russian Ioffe-Röntgen Institute (IRI) Extended Governing Board
2018-2020	Review committee European X-FEL
2015-2017	Proposal review Panel ESRF

2015-2017	Member of Scientific Advisory Board, ESRF
2014- 2017	Member of the “Wissenschaftlicher Ausschuss“ DESY
2014 (May)	Visiting Professor at the Cracow University of Technology
2014	International advisory Board “Surface X-ray and Neutron Scattering Conference”
2013 - 2015	ESRF Users organization committee elected member

Scientific Degrees

2019	Habilitation at the CAU Investigating Solid State and Liquid Interfaces on the Nanoscale with X-rays
2004	Dissertation at the CAU, Supervisor: Prof. Werner Press An X-ray diffraction investigation of the charge density wave transition at the NbSe2 surface
1994	Master’s thesis, Dublin City University, Ireland, Supervisor: Prof. Greg Hughes The characterisation of III-V semiconductor materials, principally InP and GaAs"
1987 - 1991	BSc Applied Physics at Dublin City University, Ireland

Professional Career

2021-2021	Deputy Professor at TU Dortmund, Experimental Physics I. LISA Group
Since 2012	Leader in the Ruprecht Haensel Laboratory/ Institut für Experimentelle und Angewandte Physik at the Faculty of Faculty of Mathematics and Natural Sciences CAU Visiting Scientist at the
2010	Brookhaven National Laboratory, NY, USA Assistant to Prof. O.
2006 – 2012	Magnussen, "Habilitandin" / Senior Scientist, Interface Physics, CAU
2004 – 2006	Scientific and teaching staff (Post Doc), CAU
2004	Visiting scientist at Institut Laue-Langevin (ILL), Grenoble, France PhD student Group: Prof. Werner Press CAU
2000 – 2004	Visiting scientist at the European Synchrotron Radiation Source, France
1999	Higher Scientific Officer - First Beamline Scientist at beamline 16.3
1997 – 2000	Daresbury synchrotron radiation source (high resolution diffraction), Daresbury Laboratory, CCLRC, Cheshire, England Scientific Officer -
1994 – 1997	Beamline Scientist at SRS-Beamlines 9.4 surface X-ray scattering and 6.3 X-ray Standing Waves, Synchrotron Radiation Source, Daresbury Laboratory, CCLRC, Cheshire, England

Ten most important publications

1.	**B. M. Murphy***, M. Greve, B. Runge, C. T. Koops, A. Elsen, J. Stettner, O. H. Seeck, O. M. Magnussen: ***A novel X-ray diffractometer for studies of liquid–liquid interfaces,***Journal of Synchrotron Radiation 21, 45-56 (2014). doi.org/10.1107/S1600577513026192
2.	**B. M. Murphy***, H. Requardt, J. Stettner, J. Serrano, M. Krisch, M. Muller, W. Press: ***Phonon modes at the 2H-NbSe2 surface observed by grazing incidence inelastic x-ray scattering***, Physical Review Letters 95, 256104 (2005). doi.org/10.1103/PhysRevLett.95.256104
3.	I. Diddens, **B. Murphy**, M. Krisch, M. Muller: ***Anisotropic Elastic Properties of Cellulose Measured Using Inelastic X-ray Scattering. Macromolecules***, 41, 9755-9759 (2008). doi.org/10.1021/ma801796u In situ X-ray studies of adlayer-induced crystal nucleation at the liquid-liquid interface.
4.	A. Elsen, S. Festersen, B. Runge, C. T. Koops, B. M. Ocko, M. Deutsch, O. H. Seeck, **B. M. Murphy***, O. M. Magnussen, ***Proceedings of the National Academy of Sciences of the United States of America*** 110, 6663-6668 (2013). doi.org/10.1073/pnas.1301800110
5.	J. Haddad, D. Pontoni, **B. M. Murphy**, S. Festersen, B. Runge, O. M. Magnussen, H.-G. Steinrück, H. Reichert, B. M. Ocko, M. Deutsch: ***Surface structure evolution in a homologous series of ionic liquids,*** Proceedings of the National Academy of Sciences of the United States of America, 201716418 (2018). doi.org/10.1073/pnas.1716418115
6.	P. Jordt, S. B. Hrkac, J. Gröttrup, A. Davydok, C. Krywka, N. Wolff, L. Kienle, R. Adelung, O. M. Magnussen, **B. M. Murphy**, ***Local Strain Distribution in ZnO Microstructures Visualized with Scanning Nano X-Ray Diffraction and Impact on Electrical Properties***, Advanced Engineering Materials, 2100201 (2021) doi.org/10.1002/adem.202100201
7.	**B. M. Murphy**, S. Festersen, O. M. Magnussen: ***The Atomic scale structure of liquid metal-electrolyte interfaces,*** Nanoscale 8, 13859-13866 (2016). DOI: 10.1039/C6NR01571A
8.	P. Jordt, N. Wolff, S. B. Hrkac, S. Shree, D. Wang, R. J. Harder, C. Kübel, R. Adelung, O. G. Shpyrko, O. M. Magnussen, L. Kienle, **B. M. Murphy**: ***Visualizing Intrinsic 3D-Strain Distribution in Gold Coated ZnO Microstructures by Bragg Coherent X-Ray Diffraction Imaging and Transmission Electron Microscopy with Respect to Piezotronic Applications***, Advanced Electronic Materials, 2100546 (2021). DOI: 10.1002/aelm.20210054
9	J. Mars, B. Hou, H. Weiss, H. Li, O. Konovalov, S. Festersen, **B. M. Murphy**, U. Rütt, M. Bier, M. Mezger: ***Surface induced smectic order in ionic liquids–an X-ray reflectivity study of [C 22 C 1 im]+[NTf 2]−***, Physical Chemistry Chemical Physics 19, 26651-26661 (2017).DOI: https://doi.org/10.1039/C7CP04852A
10.	S. B. Hrkac, C. T. Koops, M. Abes, C. Krywka, M. Müller, M. Burghammer, M. Sztucki, T. Dane, S. r. Kaps, Y. K. Mishra, R. Adelung, J. Schmalz, M. Gerken, E. Lage, C. Kirchhof, Quandt, Eckhard, O. M. Magnussen, **B. M. Murphy**: ***Tunable Strain in Magnetoelectric ZnO Microrod Composite Interfaces***, Acs Applied Materials & Interfaces 9, 25571-25577 (2017).DOI: 10.1021/acsami.6b15598