

Curriculum Vitae Wim Bras

Personal

Name: Wim Bras

Date of Birth: 10/01/1957, Alkmaar, Netherlands

Nationality: Dutch

Visa: American H1B and Green Card pending

Position Title: Distinguished Scientist Polymer Research
Chemical Sciences Division Oak Ridge National Laboratory (U.S.)

Research and Professional Experience

Education

- Ph.D. Liverpool John Moores University in Biophysics (1990-1995 on a part-time basis) Fibre diffraction on biological fibres
- Experimental Physics R.U. Groningen 7 year curriculum
 - 1976 - 1983 B.S. equivalent (physics, astronomy)
 - 1983 – 1987 MSc equivalent (experimental solid state physics)

Employment History

- 1- 4 - 2018 – present Senior Researcher Chemical Sciences Division Oak Ridge National Laboratory
- 1-10-2017 – present Director of Soft Polymer and Polymer Initiative Oak Ridge National Laboratory
- 29-9-2016 – 1-10-2017 Division Director Biology and Soft Condensed Matter at Oak Ridge National Laboratory
- 1-3-1998 - 31-12-2017 Division director and project leader of DUBBLE (NWO Based in Grenoble)
- 1-12-1994 – 1-3-1998 beam line scientist DUBBLE project (Dutch Belgian Beamline ESRF/NWO)
- 1-6-1988 to 1-12-1994 Netherlands Organization for Scientific Research (NWO) as beam line scientist based at the Synchrotron Radiation Source (Daresbury, U.K.)

Other Appointments

- 2004 – 2016 Visiting scientist and advisor ALS Lawrence Berkeley Laboratories (2-3 months/year)
- 2016 – present affiliate researcher ALS Lawrence Berkeley Laboratory

Employment

From 1988 - 2016, I was employed by the Netherlands Organization for Scientific Research (NWO, the Hague, the Netherlands) in different functions. In the first seven years, I was based in Daresbury Laboratory (U.K.) in charge of the beam lines that were funded under an agreement between SERC and NWO. After this, I was transferred to work on the design and, later, operation of the Dutch-Belgian Beamlines at the European Synchrotron Radiation Facility (Grenoble, France). Initially, as beam line scientist but then for almost 20 years as Division head synchrotron radiation/Project leader for the Dutch-Belgian beamlines at the European Synchrotron Radiation Facility (Grenoble, France).

In 2004 I spent a sabbatical in the Advanced Light Source in Lawrence Berkeley Laboratory (LBL) to advise on the construction of a new beamline. Still, by request of LBL, this was extended on a part time basis over the period 2004 – 2016 (2 months/year) and formalized as a visiting scientist position to advise on scientific matters and on expanding elevating the level of the user community.

From August 2016 – September 2017, I was employed by Oak Ridge National Laboratory (ORNL) as Director for the Biology and Soft Matter Division within the Neutron Sciences Directorate (NSD). This division operated eight instruments that are available for both ORNL research groups as well as external user groups. The remit was to improve the quality of the user program specifically for soft matter and life sciences.

Following a wide laboratory reorganization in September 2017, I was first appointed Director of Soft Polymer and Polymer Initiative with responsibilities over the ORNL neutron directorate as well as leading the ORNL site wide initiative. In 2018 all polymer science activities were concentrated in the ORNL Chemical Sciences Division, where I have a distinguished scientist position.

Other professional activities

Initiator and co-organizer of the CANSAS workshop series (since 1998).

Organizer of Synchrotron Radiation and Polymer Science conference Rolduc 2009

Proposal and grant reviewer for SRS Daresbury (7 years), European Union program for access to High Magnetic Field Laboratories (5 years), Stanford Synchrotron Laboratory,

Advanced Light Source Lawrence Berkeley Laboratory, NIH, NSF, E.U., NATO, IAEA, America-Israel foundation, Swiss Research Council.

Member of Scientific Advisory Committee IUCr SAS series of conferences, SRPS and SRMS/LPBMS series of conferences.

Regular referee for J. of Synchrotron Radiation, J. of Applied Crystallography, J. of Polymer Physics, European Journal of Physics, J. of Non-Crystalline Solids, Physical Review, Macromolecules, several journals of the Institute of Physics and Royal Society of Chemistry, Crystal Growth and Design, Journal of the American Chemical Society.

Various advisory Committees: Diamond Light Source (U.K.), ESRF BioSAXS (France), Spring8 (Japan), Sesame (Jordan), Advanced Light Source (Berkeley, US), SSRF (Shanghai), NSLS2 (Brookhaven), Penn State Breazedale reactor (Pennsylvania, U.S.)

Beam line review committees: Bessy 2 (Berlin, hard X-ray beamlines), ALS (Berkeley Labs, hard X-ray beamlines), Alba (Barcelona, SAXS beamline), SSRF (Shanghai, China)

Member of the In-Kind Contribution (IKRC) committee for the European Spallation Source (ESS, Lund, Sweden) (finished)

Member of the Scientific Advisory Committee of ALBA (Spanish Synchrotron)

Organizer: CANSAS 1998, SRPS conference Rolduc 2009, Dutch SAS school 2012, Belgian EXAFS school 2013, E-MRS symposium Warschau 2013, IUCr symposium Montreal 2014, Dutch SAS school 2015, SRPS conference Gyeongju 2018, SAS conference Traverse City 2018

Memberships Professional Societies:

Netherlands Physical Society (NNV), Netherlands Chemical Society (KNCV), American Materials Research Society (MRS), Institute of Physics (U.K.), American Physical Society (APS), Biophysical Society.

Elected Fellow of the Institute of Physics (IoP, UK) in 2014.

Scientific Collaborators through the years (selected)

A.J. Ryan/P. Fairclough (Sheffield), S. Förstner (KFZ Juelich), H. Goossens, H.E.H. Meijer (Eindhoven), G. Peters (Eindhoven), P. Smith/T. Tervoort (ETH Zurich), J.A. Bouwstra (Leiden), G. ten Brinke/K. Loos (Groningen), H.E. Gleeson (Manchester/Leeds), U. Raviv (Hebrew University), P. Pattison (Lausanne), G. Rikken (CNRS Toulouse/Grenoble), D. Ivanov (CNRS Mulhouse), G.N. Greaves (Aberystwyth), S. Sen (UC Davis), B.M. Weckhuijsen/ A.M. Beale (Utrecht/UCL), H. Lekkerkerker (Utrecht), G. Sankar (UC London)

UK), N.H. de Leeuw (UC London/Leeds), R. Catlow (UC London), J. Kornfield (Caltech), H. Padmore (ALS, Berkeley)

Academic Supervision

Postdoc supervision:

Daniel Hermida-Merino, Guido Heunen, Alex Brownrigg, Lucia Fernandez-Ballester, Sven Hoffman, Florian Meneau, Giuseppe Portale, Igor Dolbnya

Ph.D. Students cosupervision:

Jenny Balmer (University College London), Stephen Bauters (Gent), Igor P. Dolbnya (Utrecht), Vladimir Martis (University College London), Husn Islam (University College London), Pieter Tack (Ghent University)

Publications

I have authored and co-authored over 250 publications in refereed journals and book chapters. Approximately 90 of these publications are in the field of (bio)polymers or other soft condensed matter-based subjects and around 30 publications are dedicated to instrumentation developments in which soft condensed matter experiments were the driving factor. I also have relevant research lines in glass ceramics, catalysis and radiation influence issues. Hirsch-index 49 (Web of Science), 55 (Google Scholar)

More than 50 presentations and invited lectures at international conferences.

Recent activities

In the period 1998 – 2016, I was Division Director and project leader for the Dutch Research Council (NWO) and responsible for the Dutch-Belgian Beamlines at the European Synchrotron Radiation Sources (ESRF). This is a project that employs time averaged 10-12 persons, and which is responsible for the operation of two beamlines at the European Synchrotron Radiation Facility (ESRF). This facility enables research to be done with high intensity X-ray beams by external academic and industrial user groups. Apart from the daily management of the team also interactions with the Dutch and Flemish Governance bodies and long term financial and technical planning was required. Most important was the further development of the experimental techniques, contact with the main user groups, and to attract new level collaborations with high level Dutch, Flemish and international research teams. Also, a limited amount of time was dedicated for own research and academic supervision of Ph.D. students and postdocs involved in this research. The main collaborations were with the T.U. Eindhoven (Netherlands), T.U. Delft (Netherlands), Ghent University (Belgium), Sheffield University (U.K.), and University College London (U.K.) and involved equipment and student funding.

The beam lines are annually used for around 100-120 different experiments resulting in around 120 refereed publications annually, including, on average, 10 Ph.D. theses. The user groups are primarily from Dutch and Flemish universities as well as from high level European research groups.

From 2004 - 2016, I was spending 2 months/year visiting scientists at the Advanced Light Source in Berkeley. Initially to help design a SAXS beam line and create a user community for this equipment. This beamline is now producing > 100 highly cited publications annually. In this capacity, I was in regular contact with groups from the materials science departments of U.C. St Barbara, Caltech, UC Berkeley, UC Davis, Amherst, etc.

The synchrotron radiation beamlines for which I have been responsible throughout my career have generated so far data for around 2500 publications and 200 Ph.D. thesis.

In 2015 I was approached by the Director of the Neutron Sciences Directorate (NSD) of Oak Ridge National Laboratory regarding the position of Director for the Biology and Soft Matter Division. This division operated beamlines on both the High Flux Isotope Reactor (HFIR) as well as the Spallation Neutron Source (SNS). In September 2016 - October 2017, I took up this post. This division operated 8 beamlines and had about 60 staff members/postdocs/students. Since the lab wide reorganization, in which the scientific divisions of NSD were dissolved, I am embedded in the Chemical Sciences Division. In this period, we have managed to attract 2.4 M\$ funding for investments in instrumentation infrastructure. My role is not limited to the Chemical Sciences Division but also involves promoting and establishing inter-directorate collaborations between the Neutron, Biology/Life Sciences, Chemistry, and Engineering directorates.

Interests

I have spent more than 30 years in synchrotron radiation and neutron facilities and have been responsible for the operation of several types of synchrotron radiation and neutron scattering beam lines. From the early days, I have been interested in developing time-resolved methods to study materials science-based questions. Although I was trained in solid state physics, the work environment in Daresbury opened up the field of biology for me. Through the years, this has evolved into polymers before arcing back to the crossroads between life sciences and synthetic polymers. Besides that, I have a great affinity with the growth and formation of ceramics and porous catalyst carriers.

The diversity of research that was carried out on the beamlines and in the divisions for which I have been responsible allowed me to develop a further broad portfolio of research interests. Most of this work was in collaboration with University Based research groups, which gave me broad insights into the different optics of Academia and Large Scale User Facilities.

This initially revolved around experiments based upon Small Angle X-ray Scattering and via collaborations with academic groups into polymer processing and crystallization studies. In addition to this, I became interested in glass ceramics and metal alloys studied using both X-ray scattering and spectroscopy studies. The combination of techniques to study different aspects of samples subject to perturbations like thermal and pressure changes, as well as mechanical deformations have been initiated and developed. These technique combinations often included non-X-ray based techniques like Raman scattering, FTIR, DSC, or optical spectroscopy techniques. The developments to simulate real time polymer processing conditions on the X-ray beam lines have been a long-standing interest. This has resulted in experiments with on-line fibre spinning, film blowing, reaction injection molding, etc.

Recently I have become interested in the fundamental science behind the processing of carbon fibers and added manufacturing from polymeric materials.

Publications Wim Bras 9/1/2020

Web of Science Hirsch index: 49

Google Scholar Hirsch index: 55

Ph.D. thesis

An X-ray fibre diffraction study of magnetically aligned microtubules in solution

Liverpool John Moores University October 1995

(thesis supervisors Prof J Baldwin and Prof Joan Bordas)

Refereed Publications

1. Xu Y, Nudelman F, Eren ED, Wirix MJM, Cantaert B, Nijhuis WH, Hermida-Merino D, Portale G, Bomans PHH, Ottmann C, Friedrich H, Bras W, Akiva A, Orgel J, Meldrum FC, Sommerdijk NAJM
Intermolecular Channels Direct Crystal Orientation in Mineralized Collagen
accepted Nature Communications 2020
2. Jansen KA, Zhmurov A, Vos BE, Portale G, Hermida-Merino D, Litvinov RI, Tutwiler V, Kurniawan NA, Bras W, Weisel JW, Barsegov V, Koenderink GH
Molecular packing structure of fibrin fibers resolved by X-ray scattering and molecular modeling
Soft Matter accepted 2020
3. Islam H, Roffey A, Hollingsworth N, Bras W, Sankar G, De Leeuw NH, Hogarth G
Understanding the role of zinc dithiocarbamate complexes as single source precursors to ZnS nanomaterials
Nanoscale Advances 2(2), 798 – 807, 2020
4. van Haandel L, Longo A, Bras W, Hensen EJM, Weber T; Activation of Co– Mo– S
Hydrodesulfurization Catalysts Under Refinery Conditions-A Combined SAXS/XAS Study,
ChemCatChem 11(20), 5013-5017, 2019
5. Roffey A, Hollingsworth N, Islam H, Bras W, Sankar G, de Leeuw NH, Hogarth G; **Fe (II) and Fe (III) dithiocarbamate complexes as single source precursors to nanoscale iron sulfides: a combined synthetic and in situ XAS approach,**
Nanoscale Advances 1(8), 2965 – 2978, 2019
6. Alauhdin M, Bennett TM, He GP, Bassett SP, Portale G, Bras W, Hermida-Merino D, Howdl SM; **Monitoring morphology evolution within block copolymer microparticles during dispersion polymerisation in supercritical carbon dioxide: a high pressure SAXS study**
Polymer Chemistry 10(7) , 860-871, 2019
8. Heller WT, Cuneo M, Debeer-Schmitt L, Do C, He LL, Heroux L, Littrell K., Pingali SV, Qian S, Stanley C, Urban VS, Wu B, Bras W, : **The suite of small-angle neutron scattering instruments at Oak Ridge National Laboratory, J Applied Crystallography Volume: 51 Pages: 242-248 Part: 2**

9. Zakaria SNA, Hollingsworth N, Islam HU, Roffey A, Santos-Carballal D, Roldan A, Bras W, Sankar G, Hogarth G, Holt KB, de Leeuw NH; **Insight into the Nature of Iron Sulfide Surfaces During the Electrochemical Hydrogen Evolution and CO₂ Reduction Reactions**; *ACS Applied Materials and Interfaces* 10(38) 32708- 32085, 2018
10. Bauters S, Tack P, Rudloff-Grund JH, Banerjee D, Longo A, Vekemans B, Bras W, Brenker FE, van Silfhout R, Vincze L: **Polycapillary Optics Based Confocal Micro X-ray Fluorescence and X-ray Absorption Spectroscopy Setup at The European Synchrotron Radiation Facility Collaborative Research Group Dutch-Belgian Beamline, BM26A**. *Analytical Chemistry*, 2018, 90(3):2389-2394.
11. Rogantini D, Costantini E, Zeegers ST, de Vries CP, Bras W, de Groot F, Mutschke H, Waters L: **Investigating the interstellar dust through the Fe K-edge**. *Astronomy & Astrophysics*, 2018, 609.
12. Ngene P, Longo A, Mooij L, Bras W, Dam B: **Metal-hydrogen systems with an exceptionally large and tunable thermodynamic destabilization**. *Nature Communications* 2017, 8.
13. Huang GR, Wang YY, Wu B, Wang Z, Do C, Smith GS, Bras W, Porcar L, Falus P, Chen WR: **Reconstruction of three-dimensional anisotropic structure from small-angle scattering experiments**. *Physical Review E*, 2017, 96(2).
14. Toolan DTW, Adlington K, Isakova A, Kalamiotis A, Mokarian-Tabari P, Dimitrakis G, Dodds C, Arnold T, Terrill NJ, Bras W, *et al*: **Selective molecular annealing: in situ small angle X-ray scattering study of microwave-assisted annealing of block copolymers**. *Physical Chemistry Chemical Physics* 2017, 19(31):20412-20419.
15. Portale G, Troisi EM, Peters GWM, Bras W: **Real-Time Fast Structuring of Polymers Using Synchrotron WAXD/SAXS Techniques**. In: *Polymer Crystallization II: From Chain Microstructure to Processing. Volume 277*, edn. Edited by Auriemma F, Alfonso GC, DeRosa C; 2017: 127-165.
16. Tack P, Cotte M, Bauters S, Brun E, Banerjee D, Bras W, Ferrero C, Delattre D, Mocella V, Vincze L: **Tracking ink composition on Herculaneum papyrus scrolls: quantification and speciation of lead by X-ray based techniques and Monte Carlo simulations**. *Scientific Reports*, 2016, 6.
17. McKenzie BE, de Visser JF, Portale G, Hermida-Merino D, Friedrich H, Bomans PHH, Bras W, Monaghan OR, Holder SJ, Sommerdijk N: **The evolution of bicontinuous polymeric nanospheres in aqueous solution**. *Soft Matter* 2016, 12(18):4113-4122.
18. Tack P, Bauters S, Mauro JC, Smedskjaer MM, Vekemans B, Banerjee D, Bras W, Vincze L: **Confocal depth-resolved micro-X-ray absorption spectroscopy study of chemically strengthened boroaluminosilicate glasses**. *Rsc Advances* 2016, 6(29):24060-24065.
19. Vita F, Hegde M, Portale G, Bras W, Ferrero C, Samulski ET, Francescangeli O, Dingemans T: **Molecular ordering in the high-temperature nematic phase of an all-aromatic liquid crystal**. *Soft Matter* 2016, 12(8):2309-2314.
20. Jennings J, Bassett SP, Hermida-Merino D, Portale G, Bras W, Knight L, Titman JJ, Higuchi T, Jinnai H, Howdle SM: **How does dense phase CO₂ influence the phase behaviour of block copolymers synthesised by dispersion polymerisation?** *Polymer Chemistry* 2016, 7(4):905-916.
21. Grunewald TA, Rennhofer H, Tack P, Garrevoet J, Wermeille D, Thompson P, Bras W, Vincze L, Lichtenegger HC: **Photon Energy Becomes the Third Dimension in Crystallographic Texture Analysis**. *Angewandte Chemie-International Edition* 2016, 55(40):12190-12194.

22. Ramachandran RK, Dendooven J, Filez M, Galvita VV, Poelman H, Solano E, Minjauw MM, Devloo-Casier K, Fonda E, Hermida-Merino D *et al.*: **Atomic Layer Deposition Route To Tailor Nanoalloys of Noble and Non-noble Metals.** *Acs Nano* 2016, **10**(9):8770-8777.
23. Portale G, Hermida-Merino D, Bras W: **Polymer research and synchrotron radiation perspectives.** *European Polymer Journal*, 2016, **81**:415-432.
24. Herbert JJ, Senecal P, Martin DJ, Bras W, Beaumont SK, Beale AM: **X-ray spectroscopic and scattering methods applied to the characterisation of cobalt-based Fischer-Tropsch synthesis catalysts.** *Catalysis Science & Technology* 2016, **6**(15):5773-5791.
25. Bras W, Catlow R, Chadwick A, Mc Millan P, Sankar G, Sen S, Takada A: **The Physics and Chemistry of Disordered Materials.** *Journal of Non-Crystalline Solids* 2016, **451**:1-1.
26. Sankar G, Dent AJ, Dobson B, Bras W: **Influence of dopant metal ions on the formation of cordierite using combined SAXS/WAXS and EXAFS/WAXS techniques.** *Journal of Non-Crystalline Solids* 2016, **451**:16-22.
27. Bras W, Stanley H: **Unexpected effects in non crystalline materials exposed to X-ray radiation.** *Journal of Non-Crystalline Solids* 2016, **451**:153-160.
28. Ryan AJ, Bras W, Hermida-Merino D, Cavallo D: **The interaction between fundamental and industrial research and experimental developments in the field of polymer crystallization.** *Journal of Non-Crystalline Solids* 2016, **451**:168-178.
29. Trzesniewski BJ, Diaz-Morales O, Vermaas DA, Longo A, Bras W, Koper MTM, Smith WA: **In Situ Observation of Active Oxygen Species in Fe-Containing Ni-Based Oxygen Evolution Catalysts: The Effect of pH on Electrochemical Activity.** *Journal of the American Chemical Society* 2015, **137**(48):15112-15121.
30. Wang LG, Topham PD, Mykhaylyk OO, Yu H, Ryan AJ, Fairclough JPA, Bras W: **Self-Assembly-Driven Electrospinning: The Transition from Fibers to Intact Beaded Morphologies.** *Macromolecular Rapid Communications* 2015, **36**(15):1437-1443.
31. Bras W: **Time Resolved X Ray Scattering and Spectroscopy In Materials Science** IAEA RADIATION TECHNOLOGY REPORTS NO. 4
32. Groppo E, Gallo E, Seenivasan K, Lomachenko KA, Sommazzi A, Bordiga S, Glatzel P, van Silfhout R, Kachatkou A, Bras W, *et al.*: **XAS and XES Techniques Shed Light on the Dark Side of Ziegler-Natta Catalysts: Active-Site Generation.** *Chemcatchem* 2015, **7**(9):1432-1437.
33. Erothu H, Kolomanska J, Johnston P, Schumann S, Deribew D, Toolan DTW, Gregori A, Dagon-Lartigau C, Portale G, Bras W: **Synthesis, Thermal Processing, and Thin Film Morphology of Poly(3-hexylthiophene)-Poly(styrenesulfonate) Block Copolymers.** *Macromolecules* 2015, **48**(7):2107-2117.
34. Alaimo D, Merino DH, Grignard B, Bras W, Jerome C, Debuigne A, Gommès CJ: **Small-Angle X-ray Scattering Insights into the Architecture-Dependent Emulsifying Properties of Amphiphilic Copolymers in Supercritical Carbon Dioxide.** *Journal of Physical Chemistry B* 2015, **119**(4):1706-1716.
35. Nagaraj M, Jones JC, Panov VP, Liu H, Portale G, Bras W, Gleeson HF: **Understanding the unusual reorganization of the nanostructure of a dark conglomerate phase.** *Physical Review E*, 2015, **91**(4).
36. Roldan A, Hollingsworth N, Roffey A, Islam HU, Goodall JBM, Catlow CRA, Darr JA, Bras W, Sankar G, Holt KB, *et al.*: **Bio-inspired CO₂ conversion by iron sulfide catalysts under sustainable conditions.** *Chemical Communications* 2015, **51**(35):7501-7504.
37. Brownrigg AW, Mountjoy G, Chadwick AV, Alfredsson M, Bras W, Billaud J, Armstrong AR, Bruce PG, Dominko R, Kelder EM: **In situ Fe K-edge X-ray absorption spectroscopy study during cycling of Li₂FeSiO₄ and Li_{2.2}Fe_{0.9}SiO₄ Li ion battery materials.** *Journal of Materials Chemistry A* 2015, **3**(14):7314-7322.

38. Sabbe PJ, Dowsett M, Hand M, Grayburn R, Thompson P, Bras W, Adriaens A: **Evaluation of an X-ray-Excited Optical Microscope for Chemical Imaging of Metal and Other Surfaces.** *Analytical Chemistry*, 2014, **86**(23):11789-11796.
39. Tack P, Garrevoet J, Bauters S, Vekemans B, Laforce B, Van Ranst E, Banerjee D, Longo A, Bras W, Vincze L: **Full-Field Fluorescence Mode Micro-XANES Imaging Using a Unique Energy Dispersive CCD Detector.** *Analytical Chemistry*, 2014, **86**(17):8791-8797.
40. Schioppa EJ, Banerjee D, Visser J, Klaver T, Koffeman E, Bras W: **Measurement of the energy response function of a silicon pixel detector readout by a Timepix chip using synchrotron radiation.** *Journal of Instrumentation* 2014, **9**.
41. Martis V, Martis M, Lipp J, Detollenaere D, Rayment T, Sankar G, Bras W: **Energy-resolved electron-yield XAS studies of nanoporous CoAlPO-18 and CoAlPO-34 catalysts.** *Journal of Synchrotron Radiation* 2014, **21**:744-750.
42. van Silfhout R, Kachatkou A, Groppo E, Lamberti C, Bras W: **Position and flux stabilization of X-ray beams produced by double-crystal monochromators for EXAFS scans at the titanium K-edge.** *Journal of Synchrotron Radiation* 2014, **21**:401-408.
43. Martis V, Beale AM, Detollenaere D, Banerjee D, Moroni M, Gosselin F, Bras W: **A high-pressure and controlled-flow gas system for catalysis research.** *Journal of Synchrotron Radiation* 2014, **21**:462-463.
44. Archibald SJ, Atkin SL, Bras W, Diego-Taboada A, Mackenzie G, Mosselmans JFW, Nikitenko S, Quinn PD, Thomas MF, Young NA: **How does iron interact with sporopollenin exine capsules? An X-ray absorption study including microfocus XANES and XRF imaging.** *Journal of Materials Chemistry B* 2014, **2**(8):945-959.
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46. van Drongelen M, Cavallo D, Balzano L, Portale G, Vittorias I, Bras W, Alfonso GC, Peters GWM: **Structure Development of Low-Density Polyethylenes During Film Blowing: A Real-Time Wide-Angle X-ray Diffraction Study.** *Macromolecular Materials and Engineering* 2014, **299**(12):1494-1512.
47. Portale G, Sciortino L, Albonetti C, Giannici F, Martorana A, Bras W, Biscarini F, Longo A: **Influence of metal-support interaction on the surface structure of gold nanoclusters deposited on native SiO_x/Si substrates.** *Physical Chemistry Chemical Physics* 2014, **16**(14):6649-6656.
48. Hollingsworth N, Roffey A, Islam HU, Mercy M, Roldan A, Bras W, Wolthers M, Catlow CRA, Sankar G, Hogarth G *et al.*: **Active Nature of Primary Amines during Thermal Decomposition of Nickel Dithiocarbamates to Nickel Sulfide Nanoparticles.** *Chemistry of Materials* 2014, **26**(21):6281-6292.
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50. Hermida-Merino D, Portale G, Fields P, Wilson R, Bassett SP, Jennings J, Dellar M, Gommès C, Howdle SM, Vrolijk BCM, *et al.*: **A high pressure cell for supercritical CO₂ on-line chemical reactions studied with x-ray techniques.** *Review of Scientific Instruments* 2014, **85**(9).
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53. Dere EG, Sharma H, Huizenga RM, Portale G, Bras W, Bliznuk V, Sietsma J, Offerman SE: **Formation of (Fe,Cr) carbides and dislocation structures in low-chromium steel studied in situ using synchrotron radiation.** *Journal of Applied Crystallography* 2013, **46**:181-192.
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55. Portale G, Cavallo D, Alfonso GC, Hermida-Merino D, van Drongelen M, Balzano L, Peters GWM, Goossens JGP, Bras W: **Polymer crystallization studies under processing-relevant conditions at the SAXS/WAXS DUBBLE beamline at the ESRF.** *Journal of Applied Crystallography* 2013, **46**:1681-1689.
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57. McCulloch B, Portale G, Bras W, Pople JA, Hexemer A, Segalman RA: **Dynamics of Magnetic Alignment in Rod-Coil Block Copolymers.** *Macromolecules* 2013, **46**(11):4462-4471.
58. Islam HU, Roffey A, Hollingsworth N, Catlow R, Wolthers M, De Leeuw N, Bras W, Sankar G, Hogarth G: **In Situ XAS of the Solvothermal Decomposition of Dithiocarbamate Complexes.** In: *15th International Conference on X-Ray Absorption Fine Structure. Volume 430*, edn. Edited by Wu ZY; 2013.
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