

Dr Joseph Hriljac PhD

Senior Lecturer in Chemistry

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About

Joe Hriljac is Senior Lecturer in Chemistry and Director of the Chemistry Graduate Research School.

Joe has published approximately 100 research papers in scientific journals in the field of materials chemistry, with emphasis in research into porous three- and two-dimensional inorganic solids and the use of synchrotron X-ray and neutron powder diffraction techniques for structural characterisation. Much of the recent focus has been on materials of interest for their ion exchange properties and use for the safe sequestration of radionuclides. He has received grants from the EPSRC, National Nuclear Laboratory and Diamond Light Source Ltd. and regularly uses international Facilities including Diamond, ISIS and the Advanced Photon Source.

[Research and Teaching Pages \(http://chemweb.bham.ac.uk/~hriljaja/index.htm\)](http://chemweb.bham.ac.uk/~hriljaja/index.htm)

Qualifications

- PhD in Chemistry, Northwestern University, 1987
- BSc in Chemistry, University of Illinois, 1982

Biography

Joe Hriljac qualified with a BSc in Chemistry (with Distinction) from the University of Illinois (USA) in 1982, attending as a National Merit Scholar. He went on to study for a PhD in Inorganic Chemistry under the supervision of Professor D. F. Shriver at Northwestern University (USA) completing his studies in 1986 and being awarded with his degree in 1987. He then undertook postdoctoral research from 1986 to 1989 with Professor A. K. Cheetham who was then in the Department of Chemical Crystallography at the University of Oxford. He moved to a Staff position at Brookhaven National Laboratory (USA) and worked with Dr D. E. Cox and then independently spending time in the Department of Physics before moving to the Chemical Sciences Division of the Department of Applied Sciences. In 1995 he moved to the School of Chemistry at the University of Birmingham.

Teaching

Teaching Programmes

- MSc Chemistry
- BSc Chemistry

Postgraduate supervision

Current postgraduate students are:

- Victoria Burnell
- Tzu Yu Chen
- Tim Lucas
- Tom Carey (joint with Dr. P. A. Anderson)

Research

RESEARCH THEMES include Inorganic Materials Chemistry, Crystallography, Diffraction.

RESEARCH ACTIVITY includes projects on mixed transition metal layered phosphate ion exchange materials, crystalline silicotitanate ion exchange materials, development and use of Pair Distribution Function analysis of framework solids to analyse phase transitions and pressure-induced amorphisation and studies of the chemical control of thermal expansion properties of zeolites inclusion compounds.

Other activities

- Chair of Diamond Light Source Ltd. Proposal Review Panel 5, June 2009 to May 2011
- Member, Diamond Light Source Ltd. Proposal Review Panel for Diffraction, June 2008 to June 2009
- Member, ISIS Proposal Review Panel for Diffraction Instruments, 2000 to 2004
- Member, NSLS Proposal Review Panel, 2006 to 2007
- Member, British Zeolite Association Committee, 2005 to present

- Elected Member of the International Center for Diffraction Data, 1999

Publications

- Keen, D. A., Goodwin, A. L., Tucker, M. G., Hriljac, J. A., Bennett, T. D., Dove, M. T., Kleppe, A. K., Jephcoat A. P. and Brunelli, M. (2011), Diffraction study of pressure-amorphised ZrW_2O_8 using *in situ* and recovered samples **Phys. Rev. B**, 83: 064109
- Paterson-Beedle, M., Readman, J. E., Hriljac, J. A. and Macaskie, L. E. (2010), Biorecovery of uranium from aqueous solutions at the expense of phytic acid **Hydrometallurgy**, 104: 524-528
- Burnell, V., Readman, J. E., Tang, C. C., Parker, J. E., Thompson S. P. and Hriljac, J. A. (2010), Synthesis and structural characterisation using Rietveld and pair distribution function analysis of layered mixed titanium-zirconium phosphates **J. Sol. St. Chem.**, 183: 2196-2204
- Chapman, K. W., Chupas, P. J., Halder, G. J., Hriljac, J. A., Kurtz, C., Greve, B. K., Ruschman, C. J. and Wilkinson, A. P. (2010), Optimizing high-pressure pair distribution function measurements in diamond anvil cells **J. Appl. Cryst.** 43: 297-307 (2010).
- Readman, J. E., Forster, P. M., Chapman, K. W., Chupas, P. J., Parise, J. B. and Hriljac, J. A. (2009), Pair distribution function analysis of pressure treated zeolite Na-A **Chem. Commun.** 3383-85 (2009).

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