University of Birmingham

Dr Nick Adkins

Senior Research Fellow

School of Metallurgy and Materials

Contact details

Telephone +44 (0)121 414 7882 (tel:+44 121 414 7882)

Email n.j.e.adkins@bham.ac.uk (mailto:n.j.e.adkins@bham.ac.uk)

School of Metallurgy and Materials
University of Birmingham
Edgbaston
Birmingham
B15 2TT

About

Nick is a Senior Research Fellow within the Interdisciplinary Research Centre in Materials Processing in the School of Metallurgy and Materials where he manages the portfolio of European Union funded projects.

He is the senior scientist working on the **AccMet, Hysop and Exomet projects (/research/activity/irc-materials-processing/themes/AMPLab/AMPLab-Projects.aspx)** .

He has twice been shortlisted for the best European Union funded project award and is a Fellow of the Institute of Materials, Minerals and Mining.

Current research interests include combinatorial metallurgy, additive manufacturing, powder processing, gas atomisation, noble and base metal catalysis, niobium silicides, metal matrix nano-composites, spray casting and net shape HIP processing.

Qualifications

- BSc (Hons.) in Chemistry, Loughborough University, UK, 1982
- Ph.D in Rapid Solidification Processing, University of Surrey, 1986
- Fellow of the Institute of Materials, Minerals and Mining

Research

Additive manufacturing (DLF – blown powder and SLM – powder bed)

Laser processing of metals

Powder processing

Rapid solidification

Niobium silicide

Metal matrix nano –composites

Raney catalysts

Publications

Journal Papers

N.P. Lavery, D.J. Jarvis, S.G. Brown, N. J. Adkins and B.P. Wilson, “Life Cycle Assessment of Sponge Nickel produced by gas atomisation for use in Industrial Hydrogenation Catalysis Applications”, Int J Life Cycle Assess (3 August 2012), pp. 1-15, doi:10.1007/s11367-012-0478-8

N.C. Barnard, S.G.R. Brown, F. Devred, J.W. Bakker, B.E. Nieuwenhuys & N.J. Adkins, “A Quantitative Investigation of the Structure of Raney-Ni Catalyst Material using both Computer Simulation and Experimental Measurements”, Journal of Catalysis Volume 281, Issue 2, 25 July 2011, Pages 300-308

F. Devred, G. Reinhart, G.N. Iles, B. van der Klugt, N.J. Adkins, J.W. Bakker, and B.E. Nieuwenhuys, “Synchrotron X-ray microtomography of Raney-type nickel catalysts prepared by gas atomization: effect of microstructure on catalytic performance”, Catalysis Today, Volume 163, Issue 1, 12 April 2011, Pages 13-19

B. Faure, J. S. Lindeløv, M. Wahlberg, N. Adkins, P. Jackson and L. Bergström “Spray drying of TiO2 nanoparticles into redispersible granules” Powder Technology 203 (2010) 384–388

F. Devred, A. Gieske, N. Adkins, U. Dahlborg, C.M. Bao, M. Calvo-Dahlborg, J.W. Bakker, B.E. Nieuwenhuys, “Influence of phase composition and particle size of atomised Ni-Al alloy samples on the catalytic performance of Raney-type nickel catalysts” Applied Catalysis a-General, vol. 356, no. 2, pp. 154-161

C.M. Bao, U. Dahlborg, N. Adkins, M. Calvo-Dahlborg, “Structural characterisation of Al-Ni powders produced by gas atomisation”, Journal of Alloys and Compounds, Volume 481, Issues 1-2, 29 July 2009, Pages 199-206, ISSN 0925-8388, DOI: 10.1016/j.jallcom.2009.03.059.

I.N. McCarthy, Z. Aslam, N.J. Adkins, A.M. Mullis, and R.F. Cochrane, “High speed imaging and Fourier analysis of the melt plume during close-coupled gas atomization” Powder Metall., 2009, vol. 52, pp. 205-212.

A.M. Mullis, N.J.E. Adkins, Z. Aslam, I.N. McCarthy & R.F Cochrane, High frame rate analysis of the spray cone geometry during close-coupled gas atomization. International Journal of Powder Metallurgy, 44 (2008) 55-64.

Conference papers:

A.M.Mullis, I.N.McCarthy, R.F.Cochrane and N.J.E.Adkins, “Investigation of pulsation phenomenon in close-coupled gas atomization”, PowderMet 2012 in Nashville, USA, 10-13 June 2012, Proceedings Vol. 1 Part 2 ISBN: 978-0-9853397-2-2

U. Hörmann, N. Adkins, R. Wunderlich and H.-J. Fecht “Development of hierarchical nanostructures for high performance catalysts”, First International Conference on Materials for Energy 2010 July 4-8, 2010 in Karlsruhe/Germany

F.Devred and N. Barnard, N.Adkins, S. Brown, J.W. Bakker and B.E. Nieuwenhuys, “Atomistic simulation of the nano-structural evolution of Raney-type catalysts from spray-atomized NiAl precursor alloys during leaching with NaOH”, Proceedings of 3rd Conference on Simulation of Electrochemical Processes, Bologna, Italy, 24 - 26 June 2009

U. Hörmann, U. Kaiser, F. Pérez-Willard, A. Minkow, H. Fecht and N. Adkins, “Helium ion microscopy and electron microscopy on high performance gas-atomised Raney-type nickel catalysts” Microscopy Conference 2009 in Graz, Austria, 30 August – 4 September 2009.

U. Hörmann, U. Kaiser, N. Adkins, R. Wunderlich, A. Minkow, H. Fecht, H. Schils, T. Scherer and H. Blumtritt “Complementary EM study on highly active nanodendritic Raney-type Ni catalysts with hierarchical build-up” European Microscopy Conference 2008, Aachen, Germany

U. Hörmann, U. Kaiser, N. J. E. Adkins, R. Wunderlich, A. Minkow, H. Fecht, H. Schils, F. Devred, B. E. Nieuwenhuys, and H. Blumtritt. “Hierarchically built-up nanostructured Raney-type Ni catalysts with very high catalytic activity.” 9th International Conference on Nanostructured Materials (NANO 2008), Rio de Janeiro, Brazil. 1-6 June 2008

C. Bao, U. Dahlborg, N. Adkins, M. Calvo-Dahlborg, “Characterisation of Ni-Al powders by neutron and X-ray diffraction”, Annual Meeting of the French Society for Metallurgy and Materials (Société Française de Métallurgie et de Matériaux), Paris, 4-6 June 2008

I.N. McCarthy, N.J. Adkins, R.F. Cochrane & A. M. Mullis “Rapid prototyping of close-coupled atomiser components sing an analogue atomiser and high frame-rate analysis”. Proceeding of the World Congress on Powder Metallurgy & Particulate Materials 2008, 8-12 June 2008, Washington DC. ISBN (13): 978-0-9793488-9-1, ISBN (10): 0-9793488-9.

F. Devred, N. Adkins, J.W. Bakker, B.E. Nieuwenhuys, “Hydrogenation reactions using Raney-type nickel catalysts.” 14th INTERNATIONAL CONGRESS ON CATALYSIS, COEX, Seoul, Korea, 14-18 July 2008

F.Devred, N.Adkins, N. Barnard, J.W. Bakker & B.E. Nieuwenhuys, “Surface study of Raney-type catalysts prepared from atomised Ni-Al alloy” Ecoss25 Surface Science Conference in Liverpool University, 29 July 2008

U. Hörmann, U. Kaiser, N. Adkins, R. Wunderlich, A. Minkow, H. Fecht, H. Schils,T. Scherer, and H. Blumtritt. “Complementary EM study on highly active nanodendritic Raney-type Ni catalysts with hierarchical build-up.” In: EMC 2008, Vol. 2, 217-218. Springer, Berlin, Germany (2008).

A.M. Mullis, N.J. Adkins, Z. Aslam, I. McCarthy and R.F. Cochrane, “High frame rate analysis of the spray cone geometry during close-coupled gas atomisation”, PowderMet 2007, Denver, US, 13-16th May 2007, (Outstanding Technical Paper Award).

Exhibitions:

Exhibit in London Science Museum in the “Science in Space” display (2008 to present).

Patents:

WO 97/25750 Method of manufacturing electrodes by gas atomisation of molten metals (EP 0871983 B1, filed 27.12.96, granted 03.05.00)

US 7094729 Raney Catalyst Preparation by Gas Atomization of Molten Alloy (filed 04.04.01, granted 22.08.06)

Patent Applications:

WO/2009/101394 High Surface Area Metal Production (filed 10.02.2009)

© University of Birmingham 2014