

## Iraq Research Fellowship Programme

### SUMMARY OF SELECTED ROUND 2 PROPOSALS & TEAM PROFILES February 2010

#### *'Transfer of Expertise in NMR Spectroscopy from the University of Liverpool to Iraq'*

##### **Research Summary**

Nuclear Magnetic Resonance Spectroscopy (NMR) is the most important analytical spectroscopy for synthetic chemists. Indeed it is impossible to imagine a western university chemistry department functioning without immediate access to NMR and to trained NMR spectroscopists. Since roughly 1990, NMR has not been available in Iraqi Universities resulting in a dearth of up-to-date expertise in this critical technique. This has resulted in a dichotomy with regard to NMR spectroscopy provision in Iraqi Universities – a lack of equipment has resulted in a lack of trained personnel. The absence of a cadre of expert trained personnel prevents the re-establishment of NMR facilities, resulting in a lack of equipment, and consequently trained personnel, and so on – a classic 'chicken and egg' problem. This lack of ready access to NMR spectroscopy severely limits the research that can be done in Iraqi Chemistry Departments and has an immediate negative impact on the development of academic thinking/progression in synthetic chemistry. This project seeks to begin to break this cycle via collaboration efforts between the Technical Institute of Mosul, the Bagdad University of Technology, the University of Kirkuk, the University of Al-Isra, Amman, the University of Mosul, and the Department of Chemistry at the University of Liverpool. NMR expertise will be transferred from the University of Liverpool to the Iraqi partners by means of two month research visits by the Iraqi fellows to Liverpool. These visits, where practicable, will be timed to coincide with courses in NMR spectroscopy in the Liverpool undergraduate and post-graduate programmes. Delivery to the wider chemistry community in Iraq will be by subsequent lecture courses delivered by the Iraqi fellows on their return to their home institutions. The fellows will be advised and supported in this by the senior Iraqi academics involved in the project. The senior Iraqi participants will also undertake short visits to Liverpool both for knowledge transfer and for planning/review of the visits by the fellows.

##### **Research Team Composition:**

**Co-Principal Investigator:** Jonathan Iggo, Senior Lecturer in Inorganic Chemistry, University of Liverpool. Research interests: Application of NMR Spectroscopy to functional chemical systems, particularly in the elucidation of the mechanisms of transition-metal catalysed reactions by *in situ*, *ex situ*, and sapphire tube NMR studies and in the characterisation of polynuclear complexes and compounds *via* 2-dimensional NMR methods. Design of high pressure NMR cells for the study of homogeneous catalysed reactions and in applying *in situ* NMR methods to the study of a wide range of catalytic systems.

**Co-Principal Investigator:** John Satherly, Lecturer in Physical Chemistry, University of Liverpool. Research interests: Measurement and prediction of the interfacial tension between coexisting liquid and supercritical fluid phases in relation to improved oil recovery. Capillary forces significantly affect the movement of multiphase fluids through porous media and hence must be taken into account in petroleum reservoir simulators. Consequently, the fluids have to be studied at the high pressure and temperature conditions of oil reservoirs.

**Co-Investigator:** CARA Fellow at the University of Liverpool, previously Scientific Lecturer in Iraq. Research interests: Applied Chemistry in the field of detergents. Gas chromatography; the effects of using different anionic and cationic ingredients in detergents; the effect of heat on the preparation of detergents; multi-residue determination of pesticides on fruit, vegetables, cereal and earth using Association of Official Analytical Chemists (AOAC) methods; the analysis of waste and drinking water to determine the dissolution of organic compounds using the EPA method; testing preservation materials for food using AOAC methods.

**Co-Investigator:** Scientific Lecturer, University of Al-Israa in Amman, Jordan. CARA Fellow. Research interests: analytical chemistry for general science, industrial chemistry, chemistry for civil engineering,

analytical chemistry for chemical engineering, pure analytical chemistry, instrumental analysis and pollution control. Held posts at universities in Baghdad prior to taking up CARA Fellowship.

**Co-Investigator:** Assistant Professor, Institute of Technology, Mosul.

**Co-Investigator:** Assistant Professor, University of Technology, Baghdad.

**Co-Investigator:** Assistant Lecturer, College of Science, Kirkuk University. Research interests: Bioinorganic chemistry and macromolecular research. Synthesis and characterisation of some macro cycle ligand Hexadintate and octadintate and the synthesis of macro cycle Derivative from 2, 6-diformyl-4-methylphenol and tries (3-aminopropyl) amine (tpt) and its reaction with metal ion.

**Co-Investigator:** Assim Sabah, Assistant Lecturer, College of Basic Education, University of Mosul. Research interests: Preparation of ionic liquids and their application to the desulfurization of heavy fuel. In the past, he has focused on the preparation and characterization of some multinuclear complexes for transition and non transition metal ions with tetrakis and tris (mercapto acetic acid). He has recently published on the subject of Synthesis and Characterization of some Tin Complexes with Thioglycolic Acid.

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### ***‘Psychosocial Paediatric Training in Iraq: Perspectives of trainers and students’***

**Research Summary** One of the consequences of the social instability in Iraq is the loss of the scientific base for caring services & child development in health & education. The present role of front-line child mental health workers in Iraq thus falls to two groups of professionals, namely teachers & paediatricians. In the past, the basic educational processes of both groups did not place emphasis on psycho-social issues (e.g. addressing issues of human capacity and social ecology). In the field of education, a project by Heartland Alliance & UNICEF (2009) is attempting to roll-out a training programme in these areas for teachers in Iraqi. There is no equivalent study in the health field in Iraq at present. The basic aim of this study is therefore to build capacity of front-line medical staff (i.e. paediatricians) via the potential redevelopment of academic programmes. Until greater capacity emerges with re-established professional groups e.g. Child Psychiatrists, School Counsellors, Clinical and Educational Psychologists, it is this group of professionals on whom the burden of psycho-social care for children and families will fall. In anticipation of shaping future service developments, the concept of interdisciplinary teamwork would be promoted both in academic training and day-to-day practice. The theory underlying this study is that more mental health education and experience would be correlated with greater mental health knowledge and self-efficacy and more favourable mental health attitudes. Information derived from this study will be used to introduce the idea of Psycho-social Issues into the academic training of paediatricians in Iraq, so that they can build services on a wider, more sensitive community base.

#### **Research Team Composition:**

**Principal Investigator:** Dr Tim Corcoran is Lecturer in Educational Psychology at the University of Sheffield and director of the masters programme in globalising education. Prior to this he worked as a psychologist in Australia, and now holds full registration as a Practitioner Psychologist with the UK Health Practitioner’s Council as well as being an Associate Fellow and Chartered Member of the British Psychological Society (Division of Educational and Child Psychology). His research has focused on how personhood is constructed within the frame of institutions and psychological practices. Another area of interest is in applying psychosocial theories to health-education practice. Recent publications include (2010) What else life if not awkward? *British Journal of Social Psychology*, 49(4) and (2009) Second nature. *British Journal of Social Psychology*, 48(2). Research interests: The nature of psychosocial worlds; how personhood is discursively constructed within institutional contexts and professional psychological practices. Health inclusive education.

**Principal Author/Co-Investigator:** Abdul Kareem Al-Obeidi, Visiting Scholar, Institute of International Education. Hosted Consultant Psychiatrist, Behman hospital, Cairo. Chairman of the Iraqi Association for

Child Mental Health (IACMH). Formerly Consultant Psychiatrist, Department of Psychiatry, Al-Yarmook Teaching Hospital in Baghdad (2006) and Consultant Psychiatrist, Child Psychiatric Clinic, Central Teaching Hospital for Paediatrics in Baghdad (2004-2006). Formerly lecturer in Child Psychiatry, Iraqi Committee for Medical Specialization in the Ministry of Higher Education. Formerly lecturer in Child Psychiatry, Faculty of Medicine at Al-Mustansiriya University, Baghdad.

**Co-Investigator:** Faculty member, Medical Faculty, Al-Mustansyria University, Baghdad.

**Co-Investigator:** Doctor, Medical Faculty, Al-Mustansyria University, Baghdad.

**Co-Instigator/Adviser:** Leslie G. Scarth, formerly Consultant Child Psychiatrist, Department of Child and Family Psychiatry at the Royal Hospital for Sick Children in Edinburgh. Formerly Honorary Senior Lecturer in the Department of Child Life and Health at the University of Edinburgh. Edinburgh Children's Panel Advisory Group member (Juvenile Justice). Former member of the Association of Child Psychology & Psychiatry in Armenia. Member of the Iraqi Association for Child Mental Health. Co-opted Member of the Iraqi Sub-Committee, Board of International Affairs, Royal College of Psychiatrists in London. Research interests: Psychological effects of chronic illness in children, having provided paediatric liaison services to Neurology, Endocrine and Haematology Services at the Royal Hospital for Sick Children, Edinburgh. Provision of clinical services to children with neuro-psychiatric problems, *e.g.* hyperkinetic syndromes, post-brain injury patients and ticquers. Provision of home-based community child psychiatry in the East- and Mid-Lothian Districts of the Lothian Region.

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## ***'Mobile Phone Technologies to Enhance Self-Management & Education for Iraqi Diabetics'***

### **Research Summary**

There is a sharp increase in the prevalence of diabetes patients among the younger generation of Iraqis living in the Basra region. Poor medical facilities and a proper infrastructure combined with the general lack of diabetes experts in Iraq, has left the country unable to cope effectively with such increasing patient demand. There is a paramount need for innovative and new technology solutions to provide a leap in the health care process, especially for diabetes screenings, management and care. In parallel, post-2003 Iraq has seen a massive increase in usage and availability of mobile phones and the Internet. This major intake of new technology has yet to be crystallised for innovative healthcare services, such as diabetes care. In recent years, there has been an exponential surge of using m-health systems and services in developing countries such as India and the continent of Africa. In these areas, the massive demand and intake of such mobile systems has had a major economic impact as they are used to alleviate and provide more efficient and effective health care delivery mechanisms, especially for chronic disease management and self-care. This project will aim to identify and introduce the potential use of mobile health (m-health) technologies for improved management of Diabetes patients in southern Iraq. The necessary clinical and technical knowledge transfer and pilot clinical trials in Basra will be carried out as part of the three- year programme. A framework for post pilots and the current programme will also be studied and formulated as part of this research proposal.

### **Research Team Composition:**

**Principal Investigator/Author:** Robert Istepanian, Professor of Data Communications, Kingston University. Visiting Professor, Division of Cellular and Molecular Medicine, St. George's University, London. Founder and director of the Mobile Information & Network Technologies Research Centre (MINT) at Kingston University. Fellow of the Institute of Engineering Technology (Formerly IEE), Senior Member of the IEEE and investigator and co-investigator of several EPSRC and EU research grants on wireless telemedicine. He currently serves on several IEEE Transactions and international journals' editorial boards including *IEEE Transaction on Information Technology in Biomedicine* (since 1997), *IEEE Transactions on NanoBioScience* and *IEEE Transactions on Mobile Computing, Int. J. of Telemedicine and Applications* and *Journal of Mobile Multimedia*. He has published more than 170-refereed journal and conference papers and

edited three books including chapters in the areas of mobile communications for healthcare, m-health technologies and biomedical signals processing.

**Co-Investigator:** Assistant Professor, University of Basra.

**Co-Investigator:** Associate Professor, Al Israa University, Jordan. Research interests: real time systems and application in digital signal processing in healthcare; mathematical modelling and bio-information data analysis; design and interfacing of microprocessor based hardware and software system application in medical devices; and parallel computing and parallel architectures (array systems).

**Co-Investigator:** Ghaida Al-Suhail, Assistant Professor, Department of Computer Engineering, University of Basrah. Research interests: multimedia communications; mobile multimedia; wireless networks & communications; internet protocols and IP networks; cross-layer design & quality of service; telemedicine & m-health systems; digital communications and signal processing; wireless sensors networks; and optical communications.

**Co-Investigator:** tbc

**Co-Investigator:** Ala Sungoor, Research Fellow, Mobile Information and Network Technologies Research Centre, Faculty of Computing, Information Systems and Mathematics, Kingston University, London. Formerly lecturer at University of Technology and Visiting Research Fellow, Scientific Research Council, Baghdad (1985-1996). Formerly Lecturer, Al-Balqa' Applied University. Research interests: Novel microarray clustering methods using digital signal processing methods; developing a data-acquisition and networking controller to remotely supervise and monitor the industrial process over the public Internet (petrol and Gas application); and developing a multi-channel communication controller for a data acquisition system to direct process control in an iron plant.

**UK Medical Collaborator:** John Gregory, Professor of Paediatric Endocrinology, School of Medicine, Cardiff University. Research interests: aspects of clinical service delivery (psychological, care at diagnosis, transition, information provision) for children with diabetes; Studies on the metabolic effects of endocrinopathy, childhood cancer and other illnesses on body composition, bone mineralisation (at both the whole body and bone cellular level) and energy expenditure; and genetics of growth hormone deficiency and thyroid disease.

**UK Medical Collaborator:** Nazar Amso, Clinical Senior Lecturer in Obstetrics & Gynaecology, School of Medicine, Cardiff University. Research interests: ultrasound and reproductive medicine; ultrasound-based ovarian screening programme in the general population; national ovarian cancer screening programme both in women with a familial history of ovarian or breast cancer and the United Kingdom Collaborative Trial of Ovarian Cancer Screening.

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## ***'Transforming the Learning Environment through Theatre (TLET): Developing a Basra Model'***

### **Research Summary**

Our proposal is a research project to document and evaluate the establishment within the English Department of the University of Basra of an English-language theatre group dedicated to fostering academic community, developing students' skills of English language and teachers' communicative pedagogy, and honing their understanding of modern and contemporary English theatre. The theatre group, to be called simply Basra Theatre Group, will have a double mandate, each component of which will be of equal importance. The first commitment of Basra Theatre Group will be to mount productions in English of significant curriculum-relevant plays, which are written by modern and contemporary British and American playwrights. In each production, a group of selected students and teachers will be involved. The second commitment will be to engage in creative workshops based on the theories of Augusto Boal to enable the students and the teachers communicate and discuss their community problems and issues in English. Also, these workshops will be

useful for teachers who would like to use Boal's techniques in the classroom. The project has two distinct foci for research. The first addresses the impact of theatre activity on the academic community in the University of Basra, principally in the English Department, both students and faculty, and in concentric circles outward into the wider community. The second focus of research will be on the anticipated impact of participation in the project on the students' language facility (in English), their critical thinking skills, their readiness to participate in interactive learning, and their confidence in engaged performance.

### **Research Team Composition:**

**Co-Principal Investigator:** Robert Fothergill, Professor Emeritus of Theatre in the Faculty of Fine Arts at York University, Canada. Formerly Chair of Theatre in the Faculty of Fine Arts (1994-1999) and Chair of English in Atkinson College (1978-1982, 1990-1992). Formerly lecturer in English at the University of Baghdad. Selected works: *Public Lies and Other Plays* (Toronto, Playwrights Canada Press, 2007) *Private Chronicles: A Study of English Diaries* (London, Oxford University Press, 1974). He has also written, directed, produced and performed in a number of plays in Canada and India. Former instructor in acting workshops in the Department of Drama at the University of Rajasthan, India. Former Visiting Professor at the Indian Association for Canadian Studies seminar at the University of Baroda, Gujarat, India.

**Co-Principal Investigator:** Bruce Wooding, Head of the School of Professional and Community Development, Central School of Speech and Drama.

**Principal Author/Co-Investigator:** Amir Al-Azraki, PhD student, Department of Theatre, York University, Canada. Formerly Lecturer in English Drama, English Department, University of Basra (2004-2006). Formerly lecturer in English poetry, Shatt Al Arab University in Basra (2004-2005). Selected works: *Stuck & Judgement Day* (Victoria, First Choice Books, 2008). *Waiting for Gilgamesh: Scenes from Iraq*, (staged at Winters College, York University and at the University of Basra in 2009).

**Co-Investigator:** Iraqi teacher of English drama

**Co-Investigator:** Iraqi specialist in Theatrical Arts.

**Research / Education Advisor:** Michael Pomerantz, Honorary Lecturer, School of Education, University of Sheffield.