Firas A. Rasoul

Current Position: ***Senior Scientist*** Petroleum Research Centre
Kuwait Institute for Scientific Research (KISR),
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Affiliation: ***Honorary Professor***: School of Chemical Engineering, University of Queensland (UQ), Brisbane, Australia

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***Summary of Work Experience*:**

- More than ***35 years*** in Research and Development, including ***15 years teaching*** at tertiary institutions.
- 25 years' experience in ***R&D management and strategic planning*** of multi-disciplinary research programs.
- Extensive experience and excellent track record of successfully evolving research concepts to commercially valuable products
- Experience and credentials in managing the process of taking a product from research concept through development phase and scale-up for production to commercialization.
- Wide experience and knowledge in the latest ***"state-of-the-art"*** technologies including **polymeric Biomaterials**, ***nanotechnology*** and ***bio-nanotechnology*** and their ***applications***
- Experienced team leader and good supervisory and management skills.

***Personal Statement*:**

Dr Firas Rasoul has gained wide experience in materials science and technology through his association with various Industrial Research and Academic Organisations in the UK, Middle East and Australia. He has a BSc degree in Chemistry (Basra University); MSc in Photochemistry from Southampton University, and PhD in Polymer Chemistry from Liverpool University, U.K. After post-doctoral fellowship at Liverpool University / Industrial Chemistry Department, he joined the Kuwait Institute for Scientific Research (KISR) as Assistant Research Scientist in 1980; then went through the regular promotion schemes to become Research Scientist in 1987. He moved in 1990 to the UK to work with Smith & Nephew Research Group (orthopaedics, wound management and health care Division).

In Australia, He was a member of the Polymer and Radiation Group, University of Queensland (1991-1994), then a Senior Researcher with the Cooperative Research Centre (CRC) for Polymers (Melbourne) and an adjunct lecturer with the Polymer Technology Centre at the Royal Melbourne Institute of Technology (RMIT). From 1996-2000, he was the Chief Polymer Scientist at Chiron Technologies P/L Melbourne (subsidiary of Chiron Corporation, Emeryville, California USA)**.** Dr Rasoul co-founded Polymerat Pty Ltd in 2000 (a biotechnology company based in Brisbane-Australia) which was then acquired by Anteo Diagnostics P/L in 2004. He led the company's R&D Program to develop new nanostructured membranes as a diagnostic kit. As a member of the management team he successfully negotiated and secured seed funds from Venture Capitalist and other sources worth over $18M**.**

After ***4*** successful years in establishing commercial R&D and managing the research program of his biotechnology company (Polymerat P/L), he decided to exist, sale his shares and rejoins the academia. In 2004, he was appointed as a senior scientist at "The Australian Institute for Bioengineering and Nanotechnology (AIBN) and Centre for Advanced Imaging (CAI), University of Queensland". His main research focus at the AIBN is promoting industrial applications for his research and identifying commercial outcomes. Since ***2008*** and in addition to his other responsibilities with AIBN he joined the School of Dentistry (UQ) as an "***Affiliated Professor***" teaching polymer science, ***Biomaterials and Dental materials*** to Dentistry Students.

***Statement on Current Research Interests and Activities*:**

My current research interests are in the area of rational design and synthesis of well-defined ***nano-structured polymeric Biomaterials*** for targeted biomedical applications – Examples: hybrid polymer nanoparticles, nanofabrication and processing of Biomaterials, including dental materials, surface modification of nano-porous membranes and their applications. Recent research projects are: Self-reinforced GIC with antibacterial properties, rational design of injectable hydrogel for the treatment of failing Dental-Implant and Periodontitis, Synthesis and characterization of Nanostructured polymeric particles for the detection and quantification of H_2S gas in downhole oil wells in collaboration with UQ and GUST universities. Synthesis of COFs and ZIFs for CO_2 capture in collaboration with University of California-Berkeley.

My approach to ***nanotechnology research*** in the past 15 years has multiple facets; the technology which I have adapted in my research can be used in a wide range of applications ranging from biomedical materials to more industrial materials. Examples of which are: drug delivery, tissue regeneration, dental nano-composite, simultaneously this technology was applied to other areas such as in ***water treatment (***detection of metal ions and microorganisms***) and water desalination (***nano-filtration***)***, ***solar energy (***self-cleaning anti-abrasion coatings***)***, ***oil (***enhanced oil recovery***) and petrochemical industries (***nano-composites***)***.

The focus of my research is on the interface between ***polymer chemistry***, ***polymer engineering and biology***, where I have acquired extensive technical skills and experience in the ***state-of-the-art*** technologies, particularly in designing and processing of novel nano-materials, nano-composites, nano-porous membranes and nano-fibrous scaffolds with the aim to generate novel materials or add values and improving the performance of existing commodity materials and polymers.

Furthermore, my research work has extensively focused on industrially funded projects for the past 28 years of my career and since I moved to academia, I have built up on my past experience and knowledge in ***identifying commercial outcomes of materials research*** within my group and also to promote industrially funded research programs. As such I have ***initiated solely and in collaboration*** with scientists, engineers and practitioners from different discipline several projects focusing on rational design of targeted polymeric materials and biomaterials for specific industrial and biomedical applications (see list below).

I have also gained an extensive experience in ***planning and managing multi-disciplinary research projects***, including management of research staff with different technical skills and experiences, as such my research team consists of chemists, chemical engineers, microbiologist and biomaterial scientists. I have an excellent track record of successfully evolving research concepts to commercial products,

***Major Career Achievements*:**

Despite of my past association with industry or industrial research organizations for more than 22 years of my career and since rejoined the staff of the University in 2004, I have entered into academia with a higher focus on research outcomes in terms of publications, and as such I am author and/or co-author of:

- **More than 120** Refereed journal publications and refereed conference papers (see list of publications)
- **Over 150** International conference presentations including **(34)** invited keynote talks in International conferences.
- **5** International Patents and PCTs.
- **Over 80** Commercial-in-confidence technical reports submitted to Industrial or Government agencies
- ***Numerous*** industrial forum and presentations

***Employment History*:**

2008 - 2014:	Affiliated Professor at the School of Dentistry, University of Queensland, Brisbane, Australia.
2004 - 2014:	Senior Scientist, The Australian Institute for Bioengineering and Nanotechnology (AIBN) and Centre for Advanced Imaging (CAI), University of Queensland
2000 - 2004:	Co-Founder & Program Leader, Polymerat Pty Ltd (now Anteo Diagnostics P/L), Brisbane Australia
1996 - 2000:	Chief Polymer Scientist, Chiron Technologies (Mimotopes), Pty Ltd, Melbourne Australia (subsidiary of Chiron Corporation, Emeryville, California USA)**.**
1994 - 1996:	Senior Researcher, Cooperative Research Centre for Polymers / Royal Melbourne Institute of Technology (RMIT), Polymer Technology Centre (PTC), Melbourne, Australia
1992 - 1994:	Consultant to UniQuest, University of Queensland.
1991 - 1994:	Research Fellow, Polymer and Radiation Group-Chemistry Department, University of Queensland, Brisbane, Australia
1990 - 1991:	Researcher - Smith & Nephew Research, York Science Park, York, U.K.
1979 – 1990:	Research Scientist in the Petroleum, Petrochemical, and Materials Division- Kuwait Institute for Scientific Research (KISR), Kuwait
Sept 1979- Nov 1979:	Touring Europe and North America.
Oct 1978 - Sept 1979:	Post Doctorate fellow, Donnan Laboratories, Physical and Industrial Chemistry Department, The University of Liverpool, England.

***Training Courses*:** Received special training courses in management:

* Introduction to Coaching Fundamentals
* Customized Coaching Program
* Project Management
* Successful Meetings
* Team Building and Delegation
* Time Management
* Employee Motivation
* Performance Management

***Educational Qualifications*:**

March 1979: PhD in Polymer Chemistry, Department of Inorganic Physical and Industrial Chemistry, University of Liverpool, England.
Supervisor: Professor A. Ledwith CBE, FRSC, FRS / ex-Chairman, Engineering and Physical Sciences Research Council (EPSRC) UK.
PhD Thesis: "Photochemistry and Photophysics of Carbazole containing Monomers and Polymers" The project was sponsored by Xerox, USA.

Oct 1976: MSc in Advanced Photochemistry, Chemistry Department, University of Southampton, England.
Supervisor: Professor D. Phillips / Imperial Collage / London UK
MSc Thesis "Studies of Photochemistry of Diaryl-Sulphone as model compound for an investigation into the photodegradation of Polysulphone". The project was sponsored by the Ministry of Defence, UK.

June 1975: BSc in Chemistry, Basra University -Iraq

***AWARDS and Honours*:**

- "Smart State prestigious award" from the Queensland Government-Australia- 2006 and 2010
- Nominated for Kuwait Foundation for the Advancement of Science reward (Dec 2009).
- Received the innovation award for excellent achievements (1987) from the Kuwait Institute for Scientific Research.
- Member elect for the polymer division standing committee and Queensland branch at the RACI 2000 and 2010.
- Member of the Australian Research Council (ARC) international referees, since 2001

Other Experience and Professional Memberships

- Member of KISR's Project Evaluation Committee (PEC)-Quality Assurance and Rapporteur (EBRC)
- Member of KISR's Scientific Promotion Committee
- Member of KISR's Intellectual Property (IP) Committee
- Strategic Management and Analysis committee member (SMAT)
- Member of KISR-KPC strategic Alliance Committee
- Member of KISR's Scholarship Committee
- Member of Optimization of KISR's Resources and Research Centers Operation Taskforce
- Member of Royal Australian Chemical Institute (RACI)
- Member of the Australian Society of Biomaterials and Tissue Engineering
- Member of the Canadian Society of Biomaterials
- Reviewer for several international journals and the ARC research grants.
- External examiner for more than 15 PhD, Master and Honors Dissertations

List of Journal and Refereed Conference Publications:

1. Synthesis, swelling, degradation and cytocompatibility of crosslinked PLLA-PEG-PLLA networks with short PLLA blocks; Hui Peng, Srinivas Varanasi, David K. Wang, Idriss Blakey, ***Firas Rasoul***, Anne Symons, David J.T. Hill and Andrew K. Whittaker; *European Polymer Journal,* ***2016,*** Vol.84, 448.
2. Synthesis and characterization of POSS-(PAA)8 star copolymers and GICs for dental applications; Christina Zelmer, David K. Wang, Imelda Keen, David J. T. Hill, Anne L. Symons, Laurence J. Walsh and ***Firas Rasoul****, *Dental Materials*, ***2016***, 32(4), e82-e92.
3. Grafting of acrylic acid-co-itaconic acid onto ePTFE and characterization of water uptake by the graft copolymers; Norsyahidah Mohd Hidzir, Qianhui Lee, David J. T. Hill, ***Firas Rasoul****,* Lisbeth Grøndahl*, *Journal of Applied Polymer Science*, ***2015***, 132(7), 41482.
4. Synthesis and Characterization of a POSS-PEG Macromonomer and POSS-PEG-PLA Hydrogels for Periodontal Applications; David K. Wang, Srinivas Varanasi, Ekaterina Strounina, David J. T. Hill, Anne L. Symons, Andrew K. Whittaker and ***Firas Rasoul****, Biomacromolecules,* **2014,** 15, 666-679.
5. FT-IR characterization and hydrolysis of PLA-PEG-PLA based copolyester hydrogels with short PLA segments and a cytocompatibility study; David K. Wang, Srinivas Varanasi, Peter M. Fredericks, David J.T. Hill, Anne L. Symons, Andrew K. Whittaker and ***Firas Rasoul****; Journal of Polymer Science, Part A: Polymer Chemistry*, **2013**, 51, 5163-5176.
6. Electrospinning and crosslinking of low-molecular-weight poly(trimethylene carbonate-co-L-lactide) as an elastomeric scaffold for vascular engineering; Bronwin Dargaville, Cedryck Vaquette, ***Firas Rasoul***, Justin Cooper-White, Julie H. Campbell and Andrew K. Whittaker; *Acta Biomaterialia*; **2013,** 9, 6885-6897.
7. The influence of composition on the physical properties of PLA-PEG-PLA-co-Boltorn based polyester hydrogels and their biological performance; David K. Wang, Srinivas Varanasi, David J. T. Hill, ***Firas Rasoul****, Anne L. Symons and Andrew K. Whittaker; *Journal of Materials Chemistry*, ***2012***, 22(14), 6994-7004.
8. Synthesis of a new hyperbranched, vinyl macromonomer through the use of click chemistry: Synthesis and characterization of copolymer hydrogels with PEG diacrylate; David K. Wang, David J. T. Hill, ***Firas***

Rasoul* and Andrew K. Whittaker; *Journal of Polymer Science, Part A: Polymer Chemistry*, **2012**, 50(6), 1143-1157.

9. The role of residual Cu(II) from click-chemistry in the catalyzed hydrolysis of Boltorn polyester-based hydrogels; David K. Wang, ***Firas Rasoul***, David J. T. Hill, Graeme R. Hanson, Christopher J. Noble and Andrew K. Whittaker; *Soft Matter*, **2012**, 8(2), 435-445.
10. Cross-Linked Poly(trimethylene carbonate-co-L-lactide) as a Biodegradable, Elastomeric Scaffold for Vascular Engineering Applications; Bronwin L. Dargaville, Cedryck Vaquette, Hui Peng, ***Firas Rasoul***, Yu Qian Chau, Justin J. Cooper-White, Julie H. Campbell and Andrew K. Whittaker; *Biomacromolecules, **2011***, 12(11), 3856-3869
11. Controlled release of ketorolac through nanocomposite films of hydrogel and LDH nanoparticles; Zhi Ping Xu, Zi Gu, Xiaoxi Cheng, ***Firas Rasoul***, Andrew K. Whittaker and Gao Qing Max Lu; *Journal of Nanoparticle Research, **2011***, 13(3), 1253-1264.
12. Hydrolytic degradation of POSS-PEG-lactide hybrid hydrogels; David Wang, Peter M. Fredericks, Athir Haddad, David J. T. Hill, ***Firas Rasoul*** and Andrew K. Whittaker; *Polymer Degradation and Stability*, ***2011***, 96(1), 123-130.
13. Novel Supramolecular Hydrogels as Artificial Vitreous Substitutes; Hui H. Lee-Wang, Idriss Blakey, Traian V. Chirila, Hui Peng, ***Firas Rasoul***, Andrew K. Whittaker and Bronwin L Dargaville. *Macromolecular Symposia*, ***2010***, 296 (Modern Trends in Polymer Science-EPF'09), 229-232.
14. Development of Injectable Biodegradable Multi-Arms PEG-Based Hydrogels: Swelling and Degradation Investigations; David Wang, David J. T. Hill, Hui Peng, Anne Symons, Srinivas Varanasi, Andrew K. Whittaker and ***Firas Rasoul***; *Macromolecular Symposia **2010***, 296 (Modern Trends in Polymer Science-EPF'09), 233-237.
15. A study of the swelling and model protein release behaviours of radiation-formed poly(N-vinyl 2-pyrrolidone-co-acrylic acid) hydrogels; David Wang, David J. T. Hill, ***Firas Rasoul*** and Andrew K. Whittaker; *Radiation Physics and Chemistry*, ***2010***, 80(2), 207-212.
16. Novel synthesis of poly(ethylene) glycol-based hydrogel crosslinked by hyperbranched amphiphilic polymers; David Wang, David J. T. Hill, ***Firas Rasoul*** and Andrew K. Whittaker; *Polymer Preprints* (American Chemical Society, Division of Polymer Chemistry), ***2010***, 51(1), 167-168.
17. Novel supramolecular polymers as artificial vitreous; Hui Hui Lee-Wang, Idriss Blakey, Traian V. Chirila, Hui Peng, ***Firas Rasoul***, Andrew K. Whittaker and Bronwin L. Dargaville; *PMSE Preprints*, ***2010***.
18. Novel synthesis of poly(ethylene) glycol-based hydrogel crosslinked by hyperbranched amphiphilic polymers; David Wang, David J.T Hill, ***Firas Rasoul*** and Andrew K. Whittaker; *239th ACS National Meeting*, San Francisco, CA, United States, March 21-25, ***2010***, POLY-522
19. Mechanical and degradation characteristics of crosslinked poly(trimethylene carbonate-co-L-lactide) scaffolds for vascular tissue engineering; Bronwin L. Dargaville, Cedryck Vaquette, Hui Peng, Idriss Blakey, ***Firas Rasoul***, Justin J. Cooper-White, Julie H. Campbell and Andrew K. Whittaker; *239th ACS National Meeting*, San Francisco, CA, United States, March 21-25, ***2010***, POLY-15.
20. Novel supramolecular polymers as artificial vitreous; Hui Hui Lee-Wang, Idriss Blakey, Traian V. Chirila, Hui Peng, ***Firas Rasoul***, Andrew K. Whittaker and Bronwin L. Dargaville; *239th ACS National Meeting*, San Francisco, CA, United States, March 21-25, ***2010***, *PMSE*-468.
21. Effect of molecular architecture on the performance of 19F MRI imaging agents; A. K. Whittaker, H. Peng, I. Blakey, B. Dargaville, ***Firas Rasoul***, S. Rose and K. Thurecht; *Pacifichem 2010*, International Chemical Congress of Pacific Basin Societies, Honolulu, HI, United States, December 15-20, ***2010***, *MACRO-1309*.
22. 19F MRI agents: Effect of structure and preparation methods on self-assembly and imaging performance; H. Peng, I. Blakey, B. Dargaville, ***Firas Rasoul***, S. Rose, K. Thurecht and A. Whittaker; *Pacifichem 2010*, International Chemical Congress of Pacific Basin Societies, Honolulu, HI, United States, December 15-20, ***2010***, *MACRO-688*.
23. Surface Plasma Modification of LLDPE for Biomedical Applications; Chantara Thevy Ratnam, David J. T. Hill, ***Firas Rasoul***, Andrew K. Whittaker and Imelda Keen; *Polymer-Plastics Technology and Engineering*, ***2010***, 49(1), 1-7.
24. Effect of solvent quality on the solution properties of assemblies of amphiphilic diblock copolymers as potential 19F MRI agents; Hui Peng, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul*** and Andrew K. Whittaker; *238th ACS National Meeting*, Washington, DC, United States, August 16-20, ***2009***, *PMSE-431*.
25. Simultaneous swelling and degradation of crosslinked PEG-PLLA networks; Hui Peng, Xiaoying Chua, Yami Chuang, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul***, Anne Symons, Srini Varanasi and Andrew K. Whittaker; *238th ACS National Meeting*, Washington, DC, United States, August 16-20, ***2009***, *PMSE-173*.

26. Effect of solvent quality on the solution properties of assemblies of amphiphilic diblock copolymers as potential 19F MRI agents; Hui Peng, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul*** and Andrew K. Whittaker; *PMSE Preprints*, ***2009***, 101, 1545-1546.
27. Simultaneous swelling and degradation of crosslinked PEG-PLLA networks; Hui Peng, Xiaoying Chua, Yami Chuang, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul***, Anne Symons, Srini Varanasi and Andrew K. Whittaker; *PMSE Preprints,* ***2009***, 101, 1063-1064.
28. Studies of the copolymerisation of acrylic acid with n-butyl vinyl ether; Qianhui Lee, David J. T. Hill, Tri Le, ***Firas Rasoul*** and Andrew K. Whittaker; *Polymer International*, ***2009***, 58(4), 348-353.
29. Synthesis and evaluation of novel partly-fluorinated block copolymers as MRI imaging agents; Hui Peng, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul***, Stephen Rose and Andrew K. Whittaker; *237th ACS National Meeting*, Salt Lake City, UT, United States, March 22-26, ***2009***, *POLY-396*.
30. Functional PEG-PLLA networks for dental bone repair: Effect of network chemistry on properties and performance; Hui Peng, Xiaoying Chua, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul***, Anne Symons, Srini Varanasi and Andrew K. Whittaker; *237th ACS National Meeting*, Salt Lake City, UT, United States, March 22-26, ***2009,*** *POLY-321*.
31. Photochemistry of low-density polyethylene-montmorillonite composites; Wael A. Ghafor, Peter J. Halley, David J. T. Hill, Darren J. Martin, ***Firas Rasoul*** and Andrew K. Whittaker; *Journal of Applied Polymer Science*, ***2009***, 112(1), 381-389.
32. Synthesis and Evaluation of Partly Fluorinated Block Copolymers as MRI Imaging Agents; Hui Peng, Idriss Blakey, Bronwin Dargaville, ***Firas Rasoul***, Stephen Rose and Andrew K. Whittaker; *Biomacromolecules*, ***2009***, 10(2), 374-381
33. Mechanism of 157 nm photodegradation of poly[4,5-difluoro-2,2 bis(trifluoromethyl)-1,3-dioxole-co-tetrafluoroethylene] (Teflon AF); Idriss Blakey, Graeme A. George, , David J. T. Hill, Heping Liu, , ***Firas Rasoul***, Llewelyn Rintoul, Paul Zimmerman and Andrew K. Whittaker; *Macromolecules* ***2007***, 40 (25): 8954-8961
34. RAFT Mediated Surface Grafting of t-Butyl Acrylate onto an Ethylene-Propylene Copolymer Initiated by Gamma Radiation**;** Khalid Kiani, David Hill, ***Firas Rasoul***, Michael Whittaker and Llewellyn Rintoul; *J. Polym. Sci. Part A: Polym Chem.* ***2007***, Vol. 45, 1074-1083.
35. Synthesis of high refractive index sulfur containing polymers for 193 nm immersion lithography: a progress report. Idriss Blakey, Will Conley, Graeme A. George, David J. T. Hill, Heping Liu, ***Firas Rasoul*** and Andrew K. Whittaker; Proceedings of *SPIE-The International Society for Optical Engineering* ***2006***, 6153 (Pt. 1, Advances in Resist Technology and Processing XXIII)
36. XPS and ^{19}F NMR Study of the Photodegradation at 157 nm of Photolithographic-Grade Teflon AF Thin Films**,** Idriss Blakey, Graeme A. George, David J. T. Hill, Heping Liu, ***Firas Rasoul***, Andrew K. Whittaker Paul Zimmerman; *Macromolecules* ***2005***, 38(10), 4050-4053
37. Characterization of grafted supports used for solid-phase synthesis. Idriss Blakey, Gary Day, Ebtihal Girjes, David S. Hunter and ***Firas Rasoul***; *Polymer International* ***2003***, 52(11), 1734-1739.
38. Porous plastic films casted from crosslinked star polymers. ***Firas Rasoul***, Joe Maeji, Michael Whittaker, Peter Kambouris and Thomas Davis. *PCT Int. Appl.* ***2003***, *WO 2003040218 A1 20030515*,
39. Polymers having co-continuous architecture. Nobuyoshi Joe Maeji, ***Firas Rasoul***, Peter Kambouris, Liying Shao and Michael Whittaker. *PCT Int. Appl.* ***2002***, *WO 2002057344 A1 20020725*
40. Modifying the surface of polymer substrates by graft polymerization. Nobuyoshi Joe Maeji, Geoffrey Wickham and Firas Rasoul*. PCT Int. Appl.* ***2002****, WO 2002050171 A1 20020627*
41. Copolymers Obtained by the Radiation-Induced Grafting of Styrene onto Poly(tetrafluoroethylene-co-perfluoropropylvinyl ether) Substrates. 1. Preparation and Structural Investigation. F. Cardona,; G. A. George,; D. J. T. Hill, ***F. Rasoul*** and J. Maeji; *Macromolecules* ***2002,*** 35(2), 355-364.
42. Thermal characterization of copolymers obtained by radiation grafting of styrene onto poly(tetrafluoroethylene-perfluoropropylvinylether) substrates: thermal decomposition, melting behavior and low-temperature transitions. F. Cardona, D. J. T. Hill, G. George, J. Maeji, ***F. Rasoul*** and S. Perera*, Polymer Degradation and Stability* ***2001***, 74(2), 219-227.
43. Grafted supports in solid-phase synthesis. ***Firas Rasoul***, Francesca Ercole, Yen Pham, Chinh T.Bui, Zemin Wu, Susan N. James, Robert W.Trainor, Geoffrey Wickham and N. Joe Maeji; *Biopolymers* ***2000***, 55(3), 207-216.
44. Characterization and properties of the copolymers obtained by the radiation grafting of polystyrene onto poly (tetrafluoroethylene - perfluoroethylene-perfluoro-propyvinylether) substrates; F. Cardona, D. Hill, G.A. George, ***F. Rasoul*** and J. Maeji; *Pacifichem 2000*, International Chemical Congress of Pacific Basin Societies., Honolulu, 915, 14-19 Dec, ***2000***.
45. Improving the performance of an acid-labile 4-hydroxymethylphenoxyacetic acid (HMP) linker on resin and synphase grafted solid-supports. Chinh T. Bui, Francesca Ercole, Yen Pham, Rhonda Campbell, ***Firas A. Rasoul***, N. Joe Maeji and Nicholas J. Ede; *Journal of Peptide Science* ***2000***, 6(10), 534-538.

46. Comparative study of reductive amination reaction on 5-(4-formyl-3,5-dimethoxyphenoxy)valeric acid and its monomethoxy analog using the Multipin approach. Chinh T. Bui, Andrew M. Bray, Yen Pham, Rhonda Campbell, Francesca Ercole, ***Firas A. Rasoul*** and N. Joe Maeji; *Molecular Diversity* ***2000***, Volume Date *1998*, 4(3), 155-163.
47. Acetophenone-based linker for solid-phase peptide synthesis. Chinh T. Bui, Andrew M. Bray, Thao Nguyen, Francesca Ercole, Firas Rasoul, Wayne Sampson and N. Joe Maeji; *Journal of Peptide Science* ***2000***, 6(2), 49-56.
48. Grafted supports in solid-phase synthesis; ***F Rasoul***; F Ercole, Y Pham, C T Bui, Z Wu, S N James, R W Trainor, G Wickham and N J Maeji; *BIOPOLYMERS* ***2000***, 55(3), 207-16.
49. A simple method for the generation of chloromethyl polystyrene on the multipin solid support; Chinh T. Bui, N. Joe Maeji, ***Firas Rasoul*** and Andrew M. Bray; *Tetrahedron Letters* ***1999***, 40(29), 5383-5386.
50. Micro-morphology of modified and nonmodified blends of polypropylene with linear low density polyethylene; F. Cser, ***F. Rasoul*** and E. Kosior; *Polymer Engineering and Science* ***1999***, 39(6), 1100-1108.
51. Acetophenone-based linker for solid phase synthesis of secondary amides and sulfonamides on the Multipin support; Chinh T. Bui, Andrew M. Bray, Francesca Ercole, Yen Pham, ***Firas A. Rasoul*** and N. Joe Maeji; *Tetrahedron Letters* ***1999***, 40(17), 3471-3474.
52. Efficiencies of reductive amination reactions on different solid supports. Chinh T. Bui, Firas A. Rasoul, Francesca Ercole, Yen Pham and N. Joe Maeji; *Tetrahedron Letters* ***1998***, 39(50), 9279-9282
53. Reversible melting of semi-crystalline polymers frequency dependence of the reversible melting enthalpy; F. Cser, F. Rasoul and E. Kosior; *Journal of Thermal Analysis and Calorimetry* ***1998,*** 52(2), 293-313.
54. Combinatorial chemistry and pharmaceutical research; Nicholas J. Ede, Ian W. James, Geoffrey Wickham, Zemin Wu, N. Joe Maeji, Firas Rasoul and Andrew M. Bray; *Chemistry in Australia* ***1998,*** 65(5), 13-15.
55. Micro-morphology of compatibilized and uncompatibilized blends of PP with LLDPE; F. Cser, ***F. Rasoul***, E. Kosior; *Polyblends '97/SPE RETEC,* International Symposium on Polymer Blends, Alloys and Filled Systems, Boucherville, Que., Oct. 9-10, ***1997***, 354-373.
56. A study of a simulated low Earth environment on the degradation of FEP polymer; ***Firas A. Rasoul***, David J. T. Hill, Graeme A. George and James H. O'Donnell; *Polymers for Advanced Technologies* ***1998,*** 9(1), 24-30.
57. Comparative study of reductive amination reaction on 5-(4-formyl-3,5-dimethoxyphenoxy)valeric acid and its monomethoxy analog using the Multipin approach; C T Bui, A M Bray, Y Pham; R Campbell, F Ercole; ***F A Rasoul*** and N J Maeji; *MOLECULAR DIVERSITY* ***1998***, 4(3), 155-63.
58. Micro-morphology of compatibilized and uncompatibilized blends of PP with LLDPE; F. Cser, ***F. Rasoul*** and E. Kosior; *Polyblends '97/SPE RETEC*, International Symposium on Polymer Blends, Alloys and Filled Systems, Boucherville, Que., Oct. 9-10, ***1997***, 354-373. Publisher: Society of Plastics Engineers, Brookfield.
59. Modulated differential scanning calorimetry. The effect of experimental variables; F. Cser, ***F. Rasoul*** and E. Kosior; *Journal of Thermal Analysis* ***1997***, 50(5-6), 727-744.
60. The surface properties of fluorinated polyimides exposed to VUV and atomic oxygen; John S. Forsythe, Graeme A. George, David J. T. Hill, James H. O'Donnell, Peter J. Pomery and ***Firas A. Rasoul***; *NASA Conference Publication* ***1995,*** 3275 (Pt. 2, LDEF--69 Months in Space), 657-665.
61. The effect of simulated low earth orbit radiation on polyimides (UV degradation study); John S. Forsythe, Graeme A. George, David J. T. Hill, James H. O'Donnell, Peter J. Pomery and ***Firas A. Rasoul***; *NASA Conference Publication* ***1995,*** 3275 (Pt. 2, LDEF--69 Months in Space), 645-656.
62. Surface properties of fluorinated polyimides exposed to VUV and atomic oxygen; ***Firas A. Rasoul***, David J. T. Hill, John S. Forsythe, James H. O'Donnell, Graeme A. George, Peter J. Pomery, Philip R. Young and John W. Connell; *Journal of Applied Polymer Science* ***1995***, 58(10), 1857-64.
63. Effect of simulated low earth orbit radiation on polyimides (UV degradation study); David J. T. Hill, ***Firas A. Rasoul***, John S. Forsythe, James H. O'Donnell, Peter J. Pomery, Graeme A. George, Philip R. Young and John W. Connell; *Journal of Applied Polymer Science* ***1995***, 58(10), 1847-56.
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89. Photodecomposition of commercial polysulfones and model diaryl sulfones; ***F. Abdul-Rasoul***, C. L. R. Catherall, J. Hargreaves, J. M. Mellor and D. Phillips; *European Polymer Journal* ***1977,***13(12), 1019-23.

<u>International Conference Papers-Invited and Keynote presentations:</u>

90. Rational Design and Synthesis of New Nano-Structured Polymeric Hydrogels and their Applications; Invited Keynote Talk, EMN Meeting on Hydrogels Materials (Energy, Materials and Nanotechnology), 9-13, May ***2016***, Singapore.

91. Synthesis of Nanostructured Biomaterials for Biomedical Applications; Invited Keynote talk, 4th Kuwait Conference of Chemistry- Chemistry and Life Sciences (KCC-2016), 21-22 March ***2016***, Kuwait.
92. Synthesis and Evaluation of a Hybrid Hydrogel for Periodontal Applications; Invited talk at the 4th International Conference on Multifunctional, Hybrid and Nanomaterials; 9-13 March ***2015,*** Sitges-Barcelona, Spain.
93. Novel Biodegradable Scaffold for Spinal Cord Tissue Repair; Invited at the 25th European conference on Biomaterials (*ESB2013*); 8-12 Sept. 2013-Madride Spain.
94. Biodegradable polyesterurethanes as scaffolds for spinal cord tissue repair; invited at the European Polymer Congress (EPF2013), 16-21, June 2013, Pisa Italy (New)
95. Nanotechnology in Areas of Strategic Importance for Iraq; Invited Keynote speaker at the "Second International Conference for reforming Higher Education in Iraq, 27-29th Nov. 2012, Baghdad University, Baghdad, Iraq.
96. Hydrogels Prepared from Amphiphilic Macromers with Porosity Controlled by In-Situ Polymerization-Induced Phase Separation; Europolymer Conferences (EUPOC-2012), Porous Polymer Based Systems; 3-7 June 2012, Gargnano-Italy.
97. Synthesis and evaluation of biodegradable hydrogels based on hyperbranched polyester for alveolar bone treatment; *14th IUPC Polymer and Organic Chemistry Conference (POC-2012),* Doha, Qatar 6-10, Jan 2012.
98. Recent Developments in Bionanotechnology and biomaterials; Plenary Talk at the International Chemistry Conference- organized by Basra University in celebration of the International year of Chemistry, 1-3 Nov. 2011, Basra- Iraq.
99. New Approaches to the synthesis of novel biomaterials, Invited speaker- Institute of Biomedical Engineering, Porto, Portugal, 4th July 2011.
100. Amphilphilic Biodegradable Hydrogels for Alveolar Bone Regeneration; Invited Keynote lecture at the European Polymer Congress (EPF2011), *26th June-1st July 2011*, Granada, Spain.
101. Novel Biomaterials for Targeted Biomedical Applications; Invited Speaker- Department of Chemical Engineering and Biomaterials, Queens University, Belfast, N. Ireland; 21, June 2011
102. Rational Design and Synthesis of Novel Biomaterials for the Treatment of Alveolar Bone Loss Associated with Periodontitis; Invited keynote lecture at the Indo-Australian Conference on Biomaterials, Tissue Engineering and Drug Delivery Systems- *Feb. 11-12, 2011* Ahmadabad-Gujarat India.
103. Rational Design of Polymeric Biomaterials for Targeted Applications; Two lectures delivered at the 8th Young Scientists Forum meeting (European Society of Biomaterials-ESB), *Sept 2010*-Finland.
104. Novel Injectable Biodegradable Hydrogels for the Treatment of Periodontitis, Keynote lecture, 23rd European conference on Biomaterials (*ESB2010*); *11-15, Sept. 2010*-Tampere-Finland.
105. New Biodegradable Hydrogels for the Delivery of Bioactives in the Treatment of Periodontitis; Canadian Biomaterials Society Conference, Kingston, Canada, 2-4, June 2010.
106. Biomaterials for Biomedical Applications, Invited Speaker; Ottawa Hospital Research Institute (OHRI), 31st, May 2010, Ottawa, Canada.
107. Hydrogels Systems Based on PLA-PEG-PLA Tri-Block Copolymers and Multi-functional Arms Macromers, 11th **Pacific Polymer Conference (PPC-11), Dec. 6-10, 2009, Cairns, Australia.**
108. Novel Hydrogels for Biomedical Applications; Plenary speaker at the 16th International Conference of the Lebanese Association for the Advancement of Science (LAAS16) from 13-16, Nov. 2009.
109. Injectable Biodegradable Hydrogels for the Treatment of Periodontitis and Peri-implantitis; *European Polymer Congress (EPF-2009), Graz, Austria, 12-17 July 2009.*
110. Recent Developments in Biomaterials; Invited Speaker-Chemistry Department, Istanbul Technical University- 9th July 2009.
111. Synthesis and Characterization of Bioactive Hydrogels for Protein Release; The 42nd IUPAC world polymer congress "Macro2008" 29th June-4th July 2008, Taiwan.
112. Polymers for Medical, Biomedical and Pharmaceutical Applications; invited as main speaker at the regional meeting (FEN) on Polymers and Petrochemicals, Kuwait Institute for Scientific Research (KISR)-Kuwait, 12-14, March 2008.
113. Polymers in Biomedical Applications, University of Sharjah (UAE), 25th Nov 2007.
114. Swelling and Protein Release Behaviors of Bioactive Hydrogels for *for Chronic Wound Healing;* Biohydrogels International Conference, Viareggio-Italy, 14-17, Nov. 2007.
115. Polymers for Biomedical Applications; Chemistry and Biomaterials School, University of Pisa-Italy, 12th Nov. 2007
116. Reforming the Higher Education System after 2003; 2nd International Symposium on Higher Education in Iraq/ University of Westminster (London) 2005.

117. γ-Radiation Grafted Surfaces for Solid Phase Synthesis; 12th International Congress of Radiation Research Aug. 17-22 2003 Brisbane Australia
118. Synphase® solid Support for drug and Peptide Synthesis; High Throughput Materials Discovery, 15th Jan. 1999, San Jose, California USA
119. Polymers and Peptide Synthesis-Grafted Polymers; 5th International & Arab Conference in Polymer Science 5, Sept. 1999, Egypt
120. Grafted Solid Supports for drug discovery; Cambridge Healthtech Institute (CHI) meeting on Combinatorial Chemistry 15-20, Nov. 1998, Yokahama, Japan.
121. Combinatorial Chemistry in Drug Discovery application; 5th Pacific Polymer Conference (PPC-5), October 26-30, 1997, Kyongju, Korea