

## Summary Curriculum Vitae: Robert Hill

### Personal Details

**Name:** Robert, Graham Hill

**Date of Birth:** 15/05/58

**Contact Address:** Unit of Dental Physical Sciences  
Dental Institute  
Barts and The London Medical School  
Queen Mary University  
Francis Bancroft Building  
Mile End Road  
London E1  
UK

**Tel:** 0044(0)20 882 5974

**Email:** r.hill@qmul.ac.uk

**Marital Status:** Married with four children

### Qualifications:

Ph.D. "Spinodal Decomposition in Polymer Mixtures" (Imperial College London)

DIC "High Polymer Physics" (Imperial College London)

MSc Fracture Mechanics of Acrylic Polymers (WNSM University of Wales)

BSc Joint Honours Chemistry and Biochemistry (UCC Cardiff University of Wales)

### Employment History:

**Present Appointment (2009-present)** Chair of Dental Physical Sciences Barts and The London Medical School, Queen Mary University of London

**Previously (1999-2009)** **Professor of** Biomaterials, Department of tissue engineering, Imperial College, London SW7 2BP UK

**(1991-1998)** Senior Lecturer in Material Science  
University of Limerick.

**(1986-1991)** Senior Lecturer  
School of Materials Science and Physics  
Thames Polytechnic (now the University of Greenwich)

**(1984-1986)** Higher Scientific Officer(Band 1)  
Materials Group, Laboratory of the Government Chemist(LGC)  
Waterloo, London.

**(1984)** Postdoctoral Research Assistant

Department of Chemical Engineering  
Imperial College, London.

**(1982-1984)** Postgraduate Student  
Department of Chemical Engineering  
Imperial College, London.

**(1979-1982)** Research Officer  
Welsh National School of Medicine  
Cardiff.

**Research Interests** -Biomaterials, Bone Cements and Substitutes, Bone Scaffolds Dental Fillings, Polymer Composite Cements, Polyalkenoate Cements, Polymer Fracture, Phase Separation, Spinodal Decomposition, Glass-Ceramics, Apatites Glass Structure, Bioactive Glasses Toothpastes.

**Publications** – over 300 Original Papers, Patents and Conference Papers on the above subjects.Plus 15 Patents.

**Referee** - for Journal of Material Science, Materials in Medicine, Clinical Materials, Materials Letters, Biomaterials, Acta Biomaterialia, Silicates, Journal of Dental Research, Thermochemica Acta. and Proc. Royal Society (A). Tissue Engineering, Phys Chem Glasses. J. Amer. Ceram. Soc etc.

**Awards** - Queens Award for Technological Achievement (Materials Group LGC) 1987.  
Royal Society Media Fellowship (BBC Science Unit)1991  
University of Limerick Research Prize 1996.  
Amourer and Brasiers Venture Award 2013  
Alan Wilson Memorial Prize 2013

### **Major Contracts/Grants in Excess of £400,000 over the last ten years**

Brite-EuRam "Applications of Ionomer Glasses" Contract BRPR-CT96-0230  
Brite-EuRam Novel Machinable Ceramics(NOVMAC) Contract BRPR-CT97-0521  
EU Fifth Framework Ultrasonically set Glass Polyalkenoate Cements(ULTRASET) Contract G5RD-CT2000-00475.  
EPSRC Structure Property Relationships in Bioactive Glasses (Joint with Dr Robert Law)  
DTI/EPSC "A Novel Bioadhesive Cement (BIOAD)"DTI Project No: TP/5/REG/6/I/H0669A

**Postgraduate Supervision** - Successfully supervised 34 PhD students and 18 MSc Students

### **Developments**

Successfully developed a glass polyalkenoate cement for fixation of cochlear implants and a bone substitute material. Both materials have FDA and MDA approval and are in clinical use. Developed with Dr David Wood a new machinable glass-ceramic based on barium mica. Developed a Nano Hydroxyapatite Toothpaste Which is sold in Major supermarkets and Chemist in the UK.

## Papers since 2012

1. E Lynch DS Brauer N Karpukhina DG Gillam and RG Hill Multicomponent bioactive glasses of varying fluoride content for treating dentin hypersensitivity *Dental Materials* 18 168-178 (2012) [Bioactive Glass \(21\)/Eilis.pdf](#)
2. FC Fredholm N Karpukhina DS Brauer JR Jones RV Law and RG HILL *Journal of the Royal Society Interface* Influence of Strontium for calcium substitution in bioactive glasses on degradation ion release and apatite formation *J. R. Soc. Interface* 7 May 2012 vol. 9 no. 70 880-889.
3. [Bioactive Glass \(21\)/HillYannJ. R. Soc. Interface-2011-Fredholm-rsif.2011.0387.pdf 3](#)
4. K Fujikura N. Karpukhina T. Kasuga DS Brauer and R Hill Influence of strontium substitution on the structure and crystallisation of Bioglass 45S5 *Journal of Materials Chemistry* 22 (2012) 7395 [Bioactive Glass \(21\)/KieBioglass.pdf](#)
5. D.S. Brauer , M.N. Anjum , M. Mneimne , R.M. Wilson, H. Doweidar, R.G. Hill Fluoride-containing bioactive glass-ceramics *Journal of Non-Crystalline Solids* 358 (2012) 1438–1442 [Bioactive Glass \(21\)/Biobrauerbiogcryst.pdf](#)
6. D. Brauer M O'Donnell and RG Hill Crystallisation of Fluorine containing Bioactive Glasses *Physics and Chemistry of Glasses - European Journal of Glass Science and Technology Part B*, Volume 53, Number 2, April 2012 , pp. 27-30
7. Ahmed Al-Noaman, Simon C.F. Rawlinson, Robert G. Hill The influence of CaF<sub>2</sub> content on the physical properties and apatite formation of bioactive glass coatings for dental implants *JNCS* 358 (2012) 1850-58 [Bioactive Glass \(21\)/hillahmed1.pdf](#)
8. Ahmed Al-Noaman, Simon C.F. Rawlinson, Robert G. Hill The role of MgO on thermal properties, structure and bioactivity of bioactive glass coating for dental implants *JNCS* 358 (2012) 3019–3027 [Bioactive Glass \(21\)/hillahmed2.pdf](#)
9. Delia S. Brauer, Natalia Karpukhina, Gopal Kedia, Aditya Bhat, Robert V. Law, Izabela Radecka, Robert G. Hill1 Bactericidal strontium-releasing injectable bone fillers based on bioactive glasses DS. Brauer N Karpukhina I. Radecka RV Law and RG HILL *J. Roy. Soc. Interface*10 (2013 ). 78 [Cements\(55\)/HillBrauerbac.full.pdf](#)
10. Norhazlin Zainuddin, Natalia Karpukhina Robert Law and Robert Hill Characterisation of a New Remineralising Glass Ionomer Cement *Dental Materials*.*Dental Materials* 28 (2012) 1051–1058 [Cements\(55\)/Hillcarbomer.pdf](#)
11. RA Martin, HL Twyman GJ Rees ER Barny RM Moss JM smith RG Hill G Cibin T. Charpentier ME Smith JV Hanna and RJ Newport An examination of calcium and strontium site distribution in bioactive glasses through isomorphic neutron diffraction, X-

- ray diffraction EXAFS and multinuclear solid state NMR J. Mater. Chem., 2012, 22, 22212 [Bioactive Glass \(21\)/HillAn examination of the calcium and strontium site distribution.pdf](#)
12. Eileen Gentleman, Molly M. Stevens, Robert G. Hill and Delia S. Brauer, Surface properties and ion release from fluoride-containing bioactive glasses promote osteoblast differentiation and mineralization in vitro *Acta Biomaterialia* 9 (2013) 5771–5779 [Bioactive Glass \(21\)/HillCulture1-s2.0-S1742706112005351-main.pdf](#)
  13. Ahmed Al-Noaman, Simon C.F. Rawlinson, Robert G. Hill Bioactive glass-stoichiometric wollastonite glass alloys to reduce TEC of bioactive glass coatings for dental implants *Materials Letters* 94 2013 69-71. [Bioactive Glass \(21\)/Ahmedletter.pdf](#)
  14. Furqan A. Shah, Delia S. Brauer, Rory M. Wilson, Robert G. Hill, Karin A. Hing Influence of cell culture medium composition on in vitro dissolution behavior of a fluoride-containing bioactive glass *J Biomed Mater Res Part A* 2013:00:000–000 [Bioactive Glass \(21\)/Hilljbma34724.pdf](#)
  15. Al-Noaman A Karpukhina N. Rawlinson SCF and Hill RG Behaviour of osteoblast-like cells cultured on titanium coated with FA/Glass composite coating *JNCS* 264 (2013) 85-91. [Bioactive Glass \(21\)/Ahmed1FAPCELL pdf.pdf](#)
  16. Al-Noaman A Karpukhina N. Rawlinson SCF and Hill RG Effect of FA on bioactivity of bioactive glass coating for titanium dental implant Part 1 Composite Powder *JNCS* 364(2013) 92-98. [Bioactive Glass \(21\)/AhmedFAP1.pdf](#)
  17. Al-Noaman A Karpukhina N. Rawlinson SCF and Hill RG Part II –Composite Coating *JNCS* 364(2012) 99-106. [Bioactive Glass \(21\)/AhmedFAP2.pdf](#)
  18. Theocharopoulos, Antonios, Xiaohui Chen, Robert Hill, and Michael J. Cattell. "Reduced wear of enamel with novel fine and nano-scale leucite glass-ceramics." *Journal of Dentistry* 41 2013, Pages 561–568 (2013). [GCs\(47\)/HillLeuDEnt.pdf](#)
  19. Mohammed, N. R., N. W. Kent, R. J. M. Lynch, N. Karpukhina, R. Hill, and P. Anderson. "Effects of Fluoride on in vitro Enamel Demineralization Analyzed by 19F MAS-NMR." *Caries Research* 47, no. 5 (2013): 421-428. [apatites\(3\)/19FCariesAnderson.pdf](#)
  20. Karpukhina, N., H. A. Abo-Mosallam, R. G. Hill, and R. V. Law. "Effect of sodium, potassium and zinc substitutions in lithium disilicate glass and glass-ceramics." *Physics and Chemistry of Glasses-European Journal of Glass Science and Technology Part B* 54, no. 2 (2013): 76-83.

21. A. Theocharopoulou, X. Chena, R.M. Wilson, R. Hill, M.J. Cattell “Crystallization of high-strength nano-scale leucite glass-ceramics.” *Dental Materials* 29 (2013) 1149-1157 [GCs\(47\)/Hill1-s2.0-S010956411300417X-main.pdf](#)
22. Imran Farooq, Maxi Tylkowski, Steffen Muller, Tomasz Janicki, Delia S Brauer and Robert G Hill “Influence of sodium content on the properties of bioactive glasses for use in air abrasion” *Biomed. Mater.* 8 (2013) 065008 (9pp) [Bioactive Glass \(21\)/HillImran.pdf](#)
23. Karpukhina N, Hill RG, Law RV “Crystallisation in oxide glasses - a tutorial review.” *Chem Soc Rev* 10 Jan (2014). [GCs\(47\)/HillpubsChemSoc.pdf](#)
24. S. Shahid Glass ionomer cements: Effect of Strontium substitution on aesthetics radioopacity and ion release. *Dental Materials* (2014) online
25. FA. Shah, DS. Brauer, N. Desai, RG. Hill, KA. Hing Fluoride-containing bioactive glasses and Bioglass 45S5 form apatite in low pH cell culture medium. *Materials Letters* 119(2014)96–99. [Bioactive Glass \(21\)/1-s2.0-S0167577X13017709-main.pdf](#)
26. K. Gorseta, D. Glavina, A. Borzabadi-Farahani, R.N. Van Duinen, I. Skrinjaric, R.G. Hill and E. Lynch One-Year Clinical Evaluation of a Glass Carbomer Fissure Sealant, a Preliminary Study. *Eur. J. Prosthodont. Rest. Dent.*, Vol.22, No. ?, pp 1-5.
27. E. Talioti, R. Hill, and D. G. Gillam The Efficacy of Selected Desensitizing OTC Products: A Systematic Review *Dentistry* Volume 1-14 (2014),
28. Furqan A. Shah, Delia S. Brauer, Rory M. Wilson, Robert G. Hill and Karin A. Hing<sup>1</sup> Influence of cell culture medium composition on in vitro dissolution behavior of a fluoride-containing bioactive glass *Journal of Biomedical Materials Research Part A* Volume 102, Issue 3, pages 647–654, March 2014
29. X. Chen, D.S. Brauer, N. Karpukhina, R.D. Waite, M. Barry, I.J. McKay<sup>d</sup>, R.G. Hill Smart’ acid-degradable zinc-releasing silicate glasses *Materials Letters* 2014 Online
30. N.R. Mohammed Q1a,\*, M. Mneimne a, R.G. Hill a, M. Al-Jawad a, R.J.M. Lynch b, P. Anderson “Physical chemical effects of zinc on in vitro enamel demineralization” *Journal of Dentistry* 2014 online.
31. Xiaojing Chen, Robert Hill and Natalia Karpukhina “Chlorapatite Glass-Ceramics” *International Journal of Applied Glass Science*, 1–10 (2014). Accepted/Online
32. Xiaojing Chen, Xiaohui Chen, Delia Brauer, Rory Wilson, Robert Hill, and Natalia Karpukhina Bioactivity of Sodium Free Fluoride Containing Glasses and Glass-Ceramics *Materials* 2014. Accepted
33. Novel Alkali Free Bioactive Fluorapatite Glass Ceramics. *Journal of Non-Crystalline Solids* Xiaojing Chen; Xiaohui Chen; Delia Brauer; RM Wilson; Robert Hill. Accepted JNCS.

34. Comesaña, Rafael; Lusquiños, Fernando; del Val, Jesús; Arias-González, Felipe; Quintero, Félix; Riveiro, Antonio; Boutinguiza, Mohamed; Jones, Julian; Hill, Robert; Pou, Juan Bioceramic 3D implants produced by laser assisted additive manufacturing Abrasivity Advanced Functional Materials. Accepted