

Personal Details:**Name:** (James) Renwick Beattie**DOB:** 06/01/77**Nationally:** British**Address:**

Centre for Vision Sciences
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Qualifications:

2002 – PhD in Chemistry and Food Science, Schools of Chemistry and Agriculture, Queens University of Belfast (QUB), Belfast, UK.

1998 – BSc (Hons) 1st Class in Chemistry, School of Chemistry, QUB, Belfast, UK

Professional Experience:

Since 1/05/2008 Postdoctoral Research Fellow in Centre for Vision Science, Biomedical Science, Medicine Health and Life Sciences, Queens University of Belfast.

1/11/2003 - 30/04/2008 Postdoctoral Research Fellow in Schools of Medicine & Dentistry and Chemistry & Chemical Engineering, Queens University of Belfast.

01/08/2003 - 31/10/2003 Postdoctoral Research Fellow, School of Chemistry, QUB.

01/02/2003 – 30/04/2003 Postdoctoral Research Fellow, School of Chemistry, QUB.

01/01/2002 – 31/07/2003 Full time carer

01/10/1998 – 31/12/2002 PhD studies at the School of Chemistry, QUB.

01/07/1998 – 11/09/1998 Research Assistant, Department of Agriculture, QUB.

07/07/1997 – 29/08/1997 Laboratory technician, TVO oy, Olkilouto, Finland.

August 2001 Attended the Danish Meat Research Institute, Roskilde Denmark

Lecturing

- Formulated and gave 6 lectures on experimental Raman spectroscopy for PhD students, postdocs and academic staff from a wide range of backgrounds. Feedback was strongly positive.
- teaching and supervising of Raman spectroscopy in the Centre of Clinical Raman microscopy with monthly seminars for active researchers, regular small groups and one-on-one teaching.

Supervision

Supervision of experimental procedures, directing data handling and interpretation, proof reading reports, presentations, manuscripts and theses.

2004 to date 2 Postdoctoral Research Fellows from biomedical science

2004 to date 8 PhD students from medicine, biomedical science, physics and pharmacy

2006 1 MSc student project from pharmacy

2004 to date 1 technical staff

2003 to date 5 undergraduate student projects from chemistry and pharmacy

1998-2002 laboratory demonstration to undergraduate students in food science and chemistry

Internal Staff Training:

Staff Training and Development Unit and Teaching and Learning in Higher Education at QUB.

04/02/2008 CRS: preparing and giving lectures

07/02/2008 Practical skills of lecturing

08/10/2007 Research Grant Application seminars – Training in EPSRC

03/10/2007 Small group teaching for science, engineering and medicine
23/03/2006 Project planning and Personal effectiveness
01/02/2006 Time management
10/04/2008 Good Clinical Practice

External Training:

28-31/07/2009 Vitae: Leadership in action
23/06/2009 Northern Ireland Licensee Training Group: Personal Licensee, Animal Handling modules 1-3, small and large animals.
02/04/2009 Futures Scotland: Innovation leadership for researchers
18-19/03/08 Mathworks: Matlab fundamentals and programming techniques
16/04/2008 Mathworks: Statistical Methods in Matlab
15/04/2008 Mathworks: Distributed and Parallel Computing with Matlab
14/10/2008 Mathworks: Matlab for Image Processing

Memberships and Affiliations:

The Association for Research in Vision and Ophthalmology (2006- to date)
Vision Science Recognised Research Group (2007- to date)

Grants:

Awarded:

9/1998 – 12/2001 Application of Raman spectroscopy to meat composition and quality, postgraduate scholarship, Department of Agriculture and Rural development (Northern Ireland).

5/2008 Microneedle Arrays for Surface Enhancement of Tissue Raman Signals, Tyndall National Institute, (NAP164, internal costing est. £20,000)

Active participant in the development of a number of grant awards and applications:

9/2007 – 9/2010 Tissue Slice Cultures of the Human Lung: An in vitro model to study anti-inflammatory and anti-proliferative compounds using Raman Microscopy, Dr Bettina Schock et al. (QUB), ESF, 2007

4/2007 – 3/2009 Raman spectroscopic evaluation of protein modification: a new, non-invasive diagnostic tool for age-related eye disease, Prof A Stitt et al. (QUB), MRC, 2007 (G0600053, £430,000)

Development of Raman Microscopy to examine the freeze drying process, Dr Vicky Kett (Queen's University Belfast), submitted to BBSRC 2007

Role of Phosphatidylethanolamine in Antioxidant Defense against Reactive Aldehydes, Dr Malgorzata Rozanowska (Cardiff University), Dr Steven Bell (QUB), submitted to BBSRC 2006.

Current Collaborations:**Academic:**

Dr Francesco Galli, University of Perugia, Italy
Dr Christine Desel, University of Kiel, Germany
Dr Malgorzata Rozanowska, Cardiff University, UK
9 intra and interschool collaborations within QUB.

Commercial:

Danish Meat Research Inst., Roskilde, Denmark
Agri Food & Biosciences Institute NI, Belfast, UK
Perkin Elmer, Beaconsfield, UK
Jobin Yvon Horiba, Villeneuve d'Ascq, France
Andor Technologies Limited, Belfast, UK

Committees:

1/11/2003 to date: Research consultant on consortium panel, Clinical Raman Microscopy Group

11/3/2008 to date: Chairperson of the university Raman User's Group

7/2001-7/2002: Windsor Baptist Church Representative for International Friendship Association

7/1999– 7/2001: Welcome Program coordinator for International Friendship Association

Peer Reviewing:

Molecular Vision, Pharmaceutical Research, Applied Spectroscopy, Poultry Science

Journal Papers:

1. Beattie, J.R., Glenn, J.V., Boulton, M.E., Stitt, A.W., and McGarvey, J.J., Effect of signal intensity normalization on the multivariate analysis of spectral data in complex 'real-world' datasets. *J. Raman Spectrosc.* (2009) 40, p. 429-435.
2. Pawlak, A.M., Glenn, J.V., Beattie, J.R., McGarvey, J.J., and Stitt, A.W., Advanced glycation as a basis for understanding retinal aging and non-invasive risk prediction. *Maillard Reaction: Recent Advances in Food and Biomedical Sciences. NYNAS* (2008) 1126, p. 59-65.
3. Pawlak, A.M., Beattie, J.R., Glenn, J.V., Stitt, A.W., McGarvey, J.J. Raman spectroscopy of advanced glycation end products (AGEs), possible markers for progressive retinal dysfunction. *J Raman Spec.* (2008) 39, 1635-1642.
4. Beattie J.R., Bell S.E.J., Borggaard C., Moss B.W., Investigating the effects of Ageing and Cooking on the Raman spectra of Porcine *Longissimus Dorsi*. *Meat Science* (2008) 80, 1205-1211
5. Glenn J.V., Beattie J.R.*, Barrett L.J., Frizzell N., Thorpe S.R., Boulton M.E., McGarvey J.J., Stitt A.W. Confocal Raman microscopy can quantify advanced glycation endproduct (AGE) modifications in Bruch's membrane leading to accurate, non-destructive prediction of ocular aging. *FASEB J.* (2007) 21, 3542-3552
6. Beattie, J.R., Maguire, C., Gilchrist, S., Barrett, L.J., Cross, C.E., Possmayer, F., Ennis, M., Elborn, J.S., Curry, W.J., McGarvey, J.J., Schock, B.C. The use of Raman microscopy to determine and localize vitamin E in biological samples. *FASEB J* (2007) 21, 766-776
7. Beattie, J.R., Brockbank, S., McGarvey, J.J., Curry, W.J. Raman microscopy of porcine inner retinal layers from the area centralis. *Mol Vis* (2007) 13, 1106-1113
8. Beattie, J.R., Bell, S.E.J., Borggaard, C., Fearon, A.M., Moss, B.W. Classification of adipose tissue species using Raman spectroscopy. *Lipids* (2007) 42, 679-685
9. Beattie JR, Barrett LJ, Malone JF, McGarvey JJ, Nieuwenhuyzen M, Kett VL. Investigation into the subambient behaviour of aqueous mannitol solutions using temperature-controlled Raman microscopy. *Eur J Pharm Biopharm.* (2007) 67, 569-78
10. Taleb, A., Diamond, J., McGarvey, J.J., Beattie, J.R., Toland, C., Hamilton, P.W. Raman microscopy for the chemometric analysis of tumor cells. *J PHYS CHEM B* (2006) 110, 19625-19631
11. Beattie, J. R., Bell, S. E. J., Borggaard, C., Fearon, A. & Moss, B. W. Prediction of adipose tissue composition using Raman spectroscopy: average properties and individual fatty acids. *Lipids* (2006) 41, 287-294
12. Beattie, J. R., Brockbank, S., McGarvey, J. J. & Curry, W. J. Effect of excitation wavelength on the Raman spectroscopy of the porcine photoreceptor layer from the area centralis. *Molecular Vision* (2005) 11, 825-832
13. Beattie, R. J., Bell, S. J., Farmer, L. J., Moss, B. W. & Desmond, P. D. Preliminary investigation of the application of Raman spectroscopy to the prediction of the sensory quality of beef silverside. *Meat Science* (2004) 66, 903-913

14. Beattie, J. R., Bell, S. E. J., Borggaard, C., Fearon, A. M. & Moss, B. W. Multivariate prediction of clarified butter composition using Raman spectroscopy. *Lipids* (2004) 39, 897-906
15. Beattie, J. R., Bell, S. J. & Moss, B. W. A critical evaluation of Raman spectroscopy for the analysis of lipids: fatty acid methyl esters. *Lipids* (2004) 39, 407-419
16. Bell, S. E. J. et al. Development of sampling methods for Raman analysis of solid dosage forms of therapeutic and illicit drugs. *Journal of Raman Spectroscopy* (2004) 35, 409-417
17. Oakes, R. E., Beattie, J. R., Moss, B. W. & Bell, S. E. J. DFT studies of long-chain fatty acids: theoretical justification for determining chain length and unsaturation from experimental Raman spectra. *Journal of Molecular Structure-Theochem* (2003) 626, 27-45
18. Oakes, R. E., Beattie, J. R., Moss, B. & Bell, S. E. J. Conformations, vibrational frequencies and Raman intensities of short chain fatty acid methyl esters using DFT With 6-31 G(d) And Sadlej pVTZ Basis Sets. *Journal of Molecular Structure* (2002) 586, 91-110

Manuscript: *joint lead author. † Highlighted in *Analytical Chemistry* ‡ Identified by The Lipid Library (<http://www.lipidlibrary.co.uk>) as among the most significant in literature on lipid analysis within the relevant year.

Italicised references have contributed toward the development of the proposal.

Current H-index (26/10/09) = 8

Total citations = 148

Book Chapters:

Beattie, J.R. and Schock, B.C. (2009) 'Identifying the spatial distribution of Vitamin E, pulmonary surfactant and membrane lipids by Confocal Raman Microscopy' in 'Lipidomics 1', (Armstrong, D., ed.), Humana Press. Chapter 26.

McGarvey, J.J. and Beattie, J.R. (2009) 'Raman Microscopy : A versatile approach to bio-imaging' in 'Imaging applications of Raman spectroscopy' Ed. Arnaud Zoubir, Springer-Verlag. Chapter 8 p In Press

Invited Presentations:

03/12/2008 'Biomedical imaging using Raman Microscopy', Biomedical Imaging Seminar series, Durham University, UK.

22/12/2007 'Micro-Raman Studies of Eye and Lung Tissue', IR and Raman Discussion Group, University College London, London

16/11/2007 'Raman microscopy can localize vitamin E and its metabolic/oxidation products in biological samples', Workshop des ISH-Themennetzwerks Biowirkstoffe: "New methods for the analysis of ROS and bioactive compounds", Salzau, Germany

16/08/2002 – 'Potential Applications of Raman Spectroscopy in Predicting Meat Quality', Danish Meat Research Institute Roskilde, Denmark.

21/06/2001 – 'Potential Applications of Raman Spectroscopy in Predicting Meat Quality', 53rd Irish Universities Chemistry Research Colloquium.

06/11/2000 – 'Raman Spectroscopic Studies on Meat Quality', Department of Agriculture and Rural Development (NI), Belfast, UK

11/08/2000 – 'Detection of adulteration in honey using Raman spectroscopy and NIR', Society of Chemical Industries seminar on food adulteration, Queen's University Belfast, Belfast, UK.

25/09/2000 – 'Potential Applications of Raman Spectroscopy' in Predicting Meat Quality', CCFRA Meat and Poultry Seminars, Campden, UK.

Conference Papers: presented orally

Presenting author underlined.

1. McGarvey J.J., Stitt A.W., Beattie J.R., Glenn J.V., Pawlak A.M., Boulton M.E., Probing ocular tissue by confocal Raman microscopy: Investigation of advanced glycation endproduct (AGE) adducts in Bruch's membrane, Pittcon, New Orleans, USA, Mar 2-7 (2008)

2. Bell S.E.J., Beattie J.R., Moss B.W. The potential of Raman spectroscopy for analysis of muscle-based foods. International workshop on muscle spectroscopy, MATFORSK Norwegian Food Research Institute, Ås, Norway, 27th – 28th September (2007)

3. Beattie J.R., Bell S.E.J., Fearon A., Moss B.W. Variation in fatty acid profile of porcine adipose tissue, measured by Raman spectroscopy. International workshop on muscle spectroscopy, MATFORSK Norwegian Food Research Institute, Ås, Norway, 27th – 28th September (2007)

4. Beattie J.R., Bell S.E.J., Moss B.W. Influence of rigor development and contraction on Raman spectra of bovine muscle. International workshop on muscle spectroscopy, MATFORSK Norwegian Food Research Institute, Ås, Norway, 27th – 28th September (2007)

5. McGarvey J.J., Beattie J.R., Brockbank S., Quinn J.G., Curry W.J., Petters R, Stitt A.W., Glenn J.V. The potential of Raman scattering as a probe of vision-impairing diseases. New Horizons in Medical Spectroscopy, Tokyo, Japan, Aug 26-27 2006.

6. McGarvey J.J., Taleb A., Diamond J., Beattie J.R., Hamilton P.W., Brockbank S., Quinn J.G., Curry W.J., Petters R. Raman scattering and biomedicine: some recent studies of retinal tissue and prostate tumour cells. 20th International Conference on Raman Spectroscopy, Yokohama, Japan, Aug 20 – 25 (2006)

7. McGarvey J.J., Beattie J.R., Curry W.J. Raman microscopy as a probe of retinal tissue. 32nd Annual Conference of Federated Analytical Chemistry & Spectroscopy Societies, Quebec , Canada, 9-13 October (2005)

Conference Papers: poster presentation

Presenting author underlined.

1. Pawlak A.M., Glenn J.V., Stitt A.W., Boulton M., McGarvey J.J., Beattie J.R. 21st ICORS , London, UK, August 17-22 (2008) 1119
2. Beattie J.R., McGarvey J.J., Kett V., 21st ICORS , London, UK, August 17-22 (2008) 670
3. Beattie J.R., McGarvey J.J., Kett V., 21st ICORS , London, UK, August 17-22 (2008) 673
4. Pawlak A.M., Glenn J.V., Beattie J.R., Zhang J., Dai Z., Nemet I., Monnier V., McGarvey J.J., Stitt A. 21st ICORS , London, UK, August 17-22 (2008) 844
5. Magee N.D., Villaume J., Beattie J.R., Marple, E.T., Ennis M., Hamilton P.W., McGarvey J.J., Elborn J.S. Samples 21st ICORS , London, UK, August 17-22 (2008) 228
6. Magee N.D., Beattie J.R., Shepherd R., Warke T.J., Ennis M., Hamilton P.W., McGarvey J.J., Elborn J.S. 21st ICORS , London, UK, August 17-22 (2008) 1087
7. Pawlak A.M., Glenn J.V., Beattie J.R., Zhang J., Dai Z., Nemet I., Monnier V., McGarvey J.J., Stitt A.W., ARVO, Fortlauderdale, USA, April 27 – May 1 (2008) 216/A472
8. Beattie J.R., Glenn J.V., Mahaffy H., O'Neill J., M.Boulton3, Wu K., McGarvey J.J., Stitt A.W. ARVO, Fortlauderdale, USA, May 6-10 (2007) 2178
9. Beattie, J.R., Maguire, C., Gilchrist, S., Barrett, L.J., Cross, C.E., Possmayer, F., Ennis, M., Elborn, J.S., Curry, W.J., McGarvey, J.J., Schock, B.C. 20th ICORS, Yokohama, Japan, Aug 20 – 25 (2006)
10. Magee N.D., Beattie R.J., Carland C., Davis R., McManus K., McGarvey J.J., Hamilton P.W., Ennis M., and Elborn J.S. 20th ICORS, Yokohama, Japan, Aug 20 – 25 (2006)
11. Beattie J.R., Glenn J.V., McGarvey J.J., Barrett L.J., Boulton M., Thorpe S., Frizzell N., Stitt A.W. New Horizons in Medical Spectroscopy, Tokyo, Japan, Aug 26-27 2006.
12. Magee N.D., Beattie J.R., McGarvey J.J., Ennis M., Hamilton P.W., Elborn J.S. New Horizons in Medical Spectroscopy, Tokyo, Japan, Aug 26-27 2006.
13. Beattie J.R., Brockbank S., Curry W.J., McGarvey J.J. ARVO, Fortlauderdale, USA, April 30 -May 4 (2006) 5505
14. Magee N.D., Beattie J.R., McGarvey J.J., Ennis M., Hamilton P. W., Elborn J.S.. American Thoracic Society, San Diego May (2006)
15. Beattie J.R., Bell S.E.J., Borggaard C., Fearon A., Beattie A., Moss B.W. ICoMST, Dublin, Ireland, 13-18th August (2006)
16. Beattie J.R., Barrett L.J., Maguire C., Gilchrist S., Cross C.E., Ennis M., Elborn J.S., McGarvey J.J., Schock B.C. Free Radical Biology And Medicine 39: S114-S114 Suppl. 1, (2005)
17. Beattie J.R., Barrett L.J., Maguire C., Gilchrist S., Cross C.E., Ennis M., Elborn J.S., McGarvey J.J., Schock B.C. Free Radical Research 39: S76-S76 Suppl. 1, (2005)
18. Magee N.D., Beattie J.R., McGarvey J.J., Ennis M., Hamilton P.W., Elborn J.S. International Society for Cellular Oncology, Belfast, April (2005)
19. Taleb A., Diamond J., McGarvey J. J., Beattie J.R., Toland C., Hamilton P.W.; International Society for Cellular Oncology. Vol. 27, Number 2, 2005, Special Issue, Belfast , 5-8 April (2005)
20. Beattie J.R., Kett V., McGarvey J.J. British Pharmaceutical Conference, Manchester, UK, 26 -28 September, (2005)
21. Magee N.D., Beattie J.R., McGarvey J.J., Ennis M., Hamilton P.W., Elborn J.S. IRDG, Belfast, Sept 2004.
22. Taleb A., Diamond J., McGarvey J. J., Beattie J.R., Toland C., Hamilton P.W., IRDG, Belfast, Sept 2004.
23. Beattie J.R., Bell S.E.J., Moss B.W. 17th ICORS, Beijing, China, Aug 20-25 (2000) 708
24. Beattie J.R., Bell S.E.J., Moss B.W., ICoMST, Yokohama, Japan, Aug (1999) Vol. 2, p 668-669
25. Bell, S. E. J.; Dennis, A. C.; Beattie, J. R.; Moss, B.; Spence, S. J. XVI. ICORS, Cape Town; John Wiley and Sons, Sept. (1998) 738-739

ICORS = International Conference on Raman Spectroscopy

ICoMST = International Congress on Meat Science and Technology

IRDG = Infrared and Raman Discussion Group

ARVO = Association for Research in Vision and Ophthalmology