

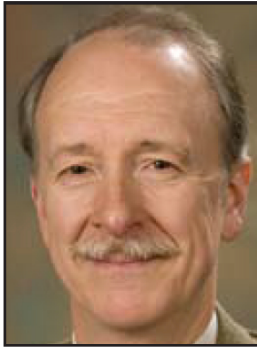
Name: Professor Brian Ellison

Position: Individual Merit Promotion Band 2 Research Scientist

Name of Organisation: Science and Technology Facilities Council

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Profile:

Professor Brian Ellison (CEng, FIET) is an internationally recognised leader in (sub)millimetre-wave and terahertz frequency heterodyne receivers used for astronomy and atmospheric remote sounding. Located within the Rutherford Appleton Laboratory Space Department, he directs the Millimetre-wave Technology and Chilbolton Radio Propagation Group, and a large team of research engineers engaged in developing new instrumentation for space missions and other applications. He previously developed world leading receiver instrumentation at Caltech, USA, and as the UK Project Manager led the UK technical contribution to the construction of the Atacama Large Millimetre and submillimetre Array (ALMA) – the world's largest and most complex radio astronomy observatory. Brian has published extensively within his field and has applied his technical developments widely and to diverse topics such as meteorology, biology, telecommunications, industrial process control, and security imaging. He currently holds visiting academic positions at The Open University and the University of Cardiff.

Name: Dr Brian Kerridge

Position: Individual Merit Promotion Band 3 Research Scientist

Name of Organisation: Science and Technology Facilities Council

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Profile:

After graduating from University of Southampton in 1979 with a B.Sc. (1st Class Hons.) in Geophysical Sciences, I joined the Atmospheric Physics Department at Oxford University where he undertook a D.Phil. and research assistantship to analyse observations of atmospheric IR emission by balloon-borne and satellite limb-sounders. In October 1985 I moved to NOAA Aeronomy Laboratory in Boulder, Colorado to take up a post-doctoral research position with Dr. Susan Solomon, a world leader in atmospheric chemistry research. In April 1987, I moved to Rutherford Appleton Laboratory in UK, where my project portfolio has expanded to cover a range of atmospheric remote-sensing techniques (satellite, airborne and ground-based sensors operating at wavelengths from uv – mm-wave). I established the Remote-Sensing Group at RAL which specialises in R&D of new techniques to retrieve distributions of atmospheric constituents from satellite observations and currently comprises eight post-doctoral staff with associated PhD students. Since 2007 I have led NERC's NCEO Atmospheric Composition Theme with University partners at Cambridge, Edinburgh, Oxford, Leeds, Leicester, UCL and York. My experience of satellite remote-sensing is called upon by ESA, Eumetsat and EC through their international expert and advisory groups, and I have co-ordinated international initiatives for future satellite missions, notably including the candidate ESA Explorer mission PREMIER. I lectured on ESA's Advanced Training Courses on Atmospheric Remote-Sensing in 2008, '09 and '10. Promotion through the Research Councils' IM scheme in 2007 was in recognition of my international reputation in the field. It provided a platform from which to develop the careers of myself and my group in this specialised area within STFC.

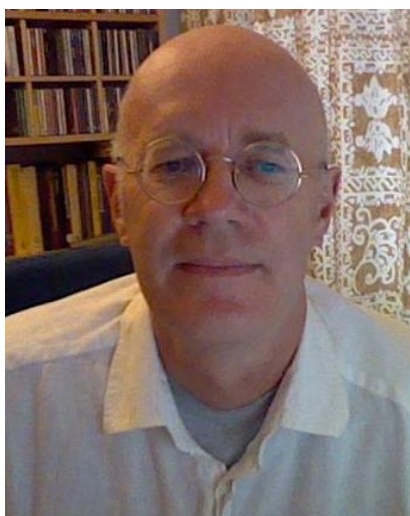
Name: Professor Nick Gould

Position: Individual Merit Promotion Band 2 Research Scientist

Name of Organisation: Science and Technology Facilities Council

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Profile:

My name is Nick Gould, and I am a member of the Numerical Analysis Group, part of the Scientific Computing Department, at the STFC-Rutherford Appleton Laboratory. For the uninitiated, numerical analysis might be said to concern itself with the fast and accurate computation of objects (values, functions and the like) for which there are no simple or stable formulae. My speciality is numerical optimization, that is the minimization or maximization of a given nonlinear objective function of many unknowns, and for which the allowed values of these unknowns may be constrained. Such problems occur naturally throughout science, engineering, economics and planning; both mankind and nature try to optimize, and the world is most definitely nonlinear.

After studying for a D. Phil. in mathematics at Oxford (including an exhilarating year at Stanford University in California), I spent three years as an Assistant Professor in the Department of Combinatorics and Optimization at the University of Waterloo in Ontario, Canada. I returned to England in 1985 and joining the Numerical Analysis Group in the Computer Science and Systems Division at AERE Harwell. I moved with the Group to the Central Computing Department (as it was then) at RAL in 1990 and have been there almost ever since. I spent a sabbatical year at CERFACS in Toulouse, France, during 1993, and flirted briefly with full-time academia as Professor of Numerical Optimisation and Tutorial

Fellow of Exeter College at Oxford from 2006 to 2008.

I am a visiting Professor within the School of Mathematics at the University of Edinburgh, and in Mathematics at Oxford. I won the Leslie Fox prize in numerical analysis in September 1986, and the Beale-Orchard-Hays prize for computational mathematical programming in August 1994. In May 2009, I was elected as one of 183 inaugural Society of Industrial and Applied Mathematics (SIAM) Fellows. I have published two books: the first on the software package LANCELOT in 1992, and the second on trust-region methods in 2000. I was editor-in-chief of the SIAM Journal on Optimization from 2005 until 2010, and am associate editor for the ACM Transactions on Mathematical Software, for the IMA Journal of Numerical Analysis, for Mathematics of Computation, and for Mathematical Programming, and as well as being an Area Editor for Mathematical Programming Computation. I am also chair of the publications committee for the Mathematical Optimization Society.

So, what made me try for an Individual Merit Promotion? Well, promotion at AERE Harwell had an IM flavour at all levels, so by the time I arrived at RAL I was already used to the idea that progressive organisations encouraged active researchers to do what they were best at, and gave them the space to do so - I had little desire to move up through the alternative administrative route since neither did management interest me, nor did I think I would be any good at it! The IM route within STFC and its predecessors seemed to hold the same promise, and although the time-scales were slightly longer I fully hoped that I would ultimately obtain an IM grade. I achieved Band 2 IM in 1999, after a slightly-frustrating couple-of-years wait to overcome an internal review procedure that imposed discipline quotas on how many "individuals" to pass to the IM Board, and Band 1 in 2011 following a much more empathetic internal review.

How has IMP benefited me (and STFC)? An immediate and perhaps unintended consequence of the earlier promotion was that I was able to spend more work time doing the research that I had promised, and this freed time in the evening to write my second book. Another consequence that is vital for my work is that I have time to balance intricate mathematical theory or complicated software developments without the constant need to stop to fire-fight incoming administrative demands (no, I am not immune from administration, but I can better plan when I need to do it). It has also allowed me the time to become more involved with "outside" activities such as those that support mathematics at the national and international level (EPSRC, SIAM, the Mathematical Optimization Society and the like), to undertake considerable editorial duties (such as running the SIAM Optimization journal for six years), and to teach and mentor young people in our local universities. I believe that all of these either directly or indirectly raise the profile of STFC; many working mathematicians first knew of STFC through contact with the Numerical Analysis Group with its continuing line of IM members, its research and its software.

Name: Dr Marisa Martin-Fernandez

Position: Individual Merit Promotion Band 3 Research Scientist

Name of Organisation: Science and Technology Facilities Council

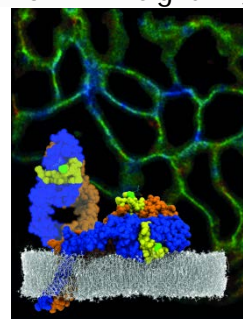
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Profile:

After graduating in Physics in Madrid, Spain, I obtained an international scholarship to carry out a PhD in Biophysics at the Daresbury Laboratory. Under the supervision of Prof. Joan Bordas. The title of my thesis is: *The molecular structure and function of striated frog muscle: X-ray diffraction studies with synchrotron radiation*. Since 1994 the focus of my research has been defining the patterns of structural conformation, association, activation and signal transduction for the four members of the Human Epithelial Growth Factor Receptor family (HER1-4), focusing in understanding the mechanisms leading to deregulated cell signalling in cancer. Since 2002 I have led a program of development of single molecule analysis to observe signalling events as they occur in live samples, bridging the gap from the cellular to the molecular perspective. My long term interest is to establish how HER signalling mechanisms are influenced by feed-back loops and internal and external perturbations, e.g. HER mutations (seen in human subjects), receptor tyrosine kinase inhibitors (RTKIs) and function-blocking antibodies. In 2008 I was awarded a BBSRC Long and Large grant - *Supra-molecular rules in signalling networks: A single molecule comparative study in cells and tissues*, in collaboration with Prof. Peter Parker, FRS. The aim of this work is to describe the basic molecular ingredients, signalling pathways, supra-molecular structural and spatiotemporal rules regulating signalling outcomes. Methods employed include multi-dimensional and multi-colour single molecule fluorescence imaging, single pair and ensemble fluorescence resonance energy transfer (FRET) and nanometer fluorescence localisation, in conjunction with the modelling of behaviour at atomic resolution, (the latter in collaboration with Dr. Martyn Winn)



In 2008 I joined the Lasers for Science Division of the Central Laser Facility based at the Research Complex at Harwell. I currently lead the Functional Biosystems group. I am also a Visiting Senior Lecturer, Division of Cancer Studies, Kings College London, and an Associate Professor, Oxford Martin Programme on Nanotechnology, University of Oxford.

I chose to try for IMP because I wanted to spend a significant proportion of my time in research. I believe my work benefits STFC ([STFC](#)), my organization, because it has led to unique instrumentation developments and because it potentially has a high societal impact. My work has the potential of contributing a unique perspective of the onset and development of cancer at the molecular level, which hopefully will play an important role in our understanding of the disease and the development of personalised therapies.

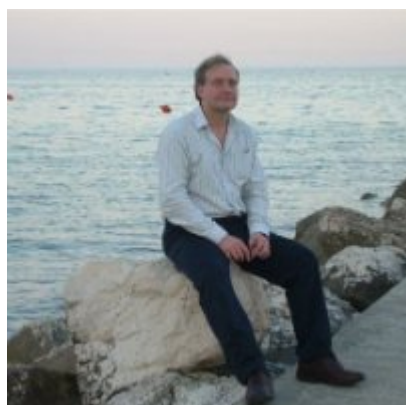
Name: Professor David Emerson

Position: Individual Merit Promotion Band 2 Research Scientist

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Profile:

Professor and Head of Computational Engineering

STFC

June 1995 – Present (18 years 4 months)Warrington, United Kingdom

The Group is part of the Scientific Computing Department in STFC and I lead a team that investigates fluid dynamics across a broad range of length and timescales, from conventional fluid problems involving turbulence and combustion down to understanding the unconventional fluid phenomena associated with micro- and nano-fluidic applications. A key strength of the Group is our extensive knowledge and experience with modern high performance computers.

The Group currently consists of the three permanent staff, two postdoctoral researchers, and two PhD students. I am a visiting professor at the University of Strathclyde and work closely with Professor Jason Reese and the Multiscale Flow Group.

Senior Scientific Officer

Daresbury Laboratory

June 1993 – June 1995 (2 years 1 month)Daresbury Laboratory

In 1993 I was promoted to Senior Scientific Officer and took over the role of Coordinator of CCP12. I initiated four "Grand Challenge" engineering consortia in collaboration with Prof K. N. C. Bray (Cambridge), Prof M. A. Leschziner (UMIST, now at Imperial College), Prof B. E. Richards (Glasgow), and Prof N. D. Sandham (QML, now at Southampton), that would exploit the UK's first massively parallel computer, the Cray T3D. I was heavily involved in

writing software that could run on parallel computers and my code was selected to be part of the benchmark suite that led to the procurement of the Cray T3D.

Senior Research Associate

Daresbury Laboratory

November 1990 – June 1993 (2 years 8 months)

I was involved in developing CFD software for parallel and vector computers.

Name: Professor David Neeley

Position: Individual Merit Promotion Band 3 Research Scientist

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Profile:

David Neely undertook his PhD studies in soft X-ray lasers at the Queens University of Belfast before moving to the Central Laser Facility, STFC in 1992. After working on many science projects, plasma diagnostic developments and facility upgrades, he became group leader for the high power laser experimental science group in 2005. He took up a visiting Professorship at the University of Strathclyde in 2007 and the Mitsuyaki Abe Chair, PMRC, Japan in 2008 and continues to collaborate closely with international researchers. He spent two years 2009-2010 managing the CLF's high power laser division before obtaining an individual merit fellowship in 2010 which has enable a greater concentration on his science interests at STFC. As well as his facility related development activities his grant funded research interests are in laser driven ion acceleration, fusion studies, high power industrial laser applications and plasma diagnostic. He is currently supervising two research assistants and two PhD students (registered at the University of Strathclyde) and conducts his research both in the UK and utilising international laser facilities.

Name: Professor Gavin Dalton

Position: Individual Merit Promotion Band 3 Research Scientist

Name of Organisation: Science and Technology Facilities Council

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Profile:

My research career began in observational cosmology at the University of Oxford, specifically in the use of large astrophysical datasets to make measurements of cosmological parameters. The advancement of this field is heavily dependent on the acquisition and exploitation of new datasets, and my career has progressed from the exploitation and analysis side to a focus on the design and development of new instrumentation to improve both the efficiency and the overall quality of these surveys.

In 1998 I was instrumental in kick-starting the process of securing a new wide-field survey facility (VISTA), and in 2002 I moved to a joint-appointment between Oxford and the Space Science and Technology Department at RAL (now RALSpace) to lead the team building VISTA's ground-breaking infra-red camera. Since 2008, as an IMP, my role has been to develop new technology and instrumentation programmes for a variety of international astronomical facilities. In this context, the IMP scheme provides a higher level of strategic interaction with the STFC management structure.