

## Brief Curriculum Vitae

**Name and Title**      **Professor Bonita Alice Steves    BSc, BA, PhD, FRAS**  
**Present post**        Director & Professor in Mathematical Astronomy  
**Academic unit**      The Graduate School, Glasgow Caledonian University (GCU)  
**Contact details**     Glasgow Caledonian University, Cowcaddens Rd, Glasgow, Scotland, UK G4 0BA  
Email: [B.Steves@gcu.ac.uk](mailto:B.Steves@gcu.ac.uk)    Phone: +44 141 331 3619

## Qualifications

PhD, Astrodynamics, University of Glasgow, Scotland	1985 - 1990
BA (Majors) Mathematics (1st Class), University of British Columbia, Canada	1982 - 1984
BSc (Hons) Physics and Astronomy (1st Class), University of British Columbia, Canada	1978 - 1982

## Academic Employment Record

Director, The Graduate School, Glasgow Caledonian University, UK	2006 - present
Professor, School of Engineering & Computing, Glasgow Caledonian University, UK	2005 - 2008
Associate Dean of Research & KT, School of Computing & Mathematical Sciences, GCU	2002 – 2006
Reader, School of Computing & Mathematical Sciences, GCU	2001 – 2005
Senior Lecturer, Dept of Mathematics, GCU	1998 – 2001
Lecturer, Dept of Mathematics, GCU	1991 – 1998
Postdoctoral Fellow in Astronomy, Queen Mary and Westfield College, London, UK	1988 – 1990

## Research Interests

**Astrodynamics:** Chaotic and stable behaviour in planetary and stellar few body gravitational systems.

**Fractals, Chaos and Non-Linear Dynamics:** Quaternionic maps. Blood flow problems over fractal deposition and links to circulatory related diseases such as diabetes, angina, heart problems.

**Graduate Education:** Impact of research skills training on Doctoral education; Development and impact of Graduate Schools; Skills and attributes of researchers; Development of research learning environments to enhance employability

## Research Leadership

### Director of The Graduate School (current post)

Responsible for the strategic development, management, and delivery of The Graduate School for the University (supporting over 500 research students). The Graduate School is responsible for ensuring the academic quality of research student education and for providing a supportive environment for research students and staff. Working in partnership with Academic Schools, the Graduate School provides support and skills training for all researchers: for Masters Dissertation students, research students, supervisors, early career researchers and research leaders.

### Associate Dean of Research, School of Computing & Mathematical Sciences (2002 – 2006)

Responsible for the development of the School's research active staff (50), postgraduate research students (25), research, income generation, knowledge transfer and commercialisation activities in the areas of Computing and Mathematical modelling applied to a wide range of disciplines: Health – Social Care/Nursing, Social Science, Business mathematics, Creative Technologies, Psychology, Education, Medical Biology, Environment, Engineering, Physics.

## Academic Achievements

### Scientific Society membership

Fellow of the Royal Astronomical Society, London, UK	1997 - present
Member of the International Astronomical Union (IAU)	1997 - present
Member of the IAU, Commission 7 – Celestial Mechanics	1997 - present

### **External Expert Committee membership (professional, advisory and academic)**

Member of the International Benchmarking Working Group IBWG on Research Degree Student Experience, supported by Scottish QAA – members are representatives from Scottish Universities, pooling Graduate Schools, QAA	2010 - present
Convenor for the Scottish Researchers Career Coordination Forum – a national collaboration of Scottish Universities, SFC, QAA, Universities Scotland and Scottish Government for the support and development of researchers in their research careers following the UK Research Concordat 2008	2008 - present
Member of the Research Project group and Advisory Group for the Vitae Project: Development and Implementation of the Researcher Development Statement (RDS) and Researcher Development Framework (RDF) – RDS endorsed UK wide, by RCUK and SFC	2008 - present
Member of ScotHerd – members are representatives from Scottish Universities Heads of Research Staff Development Units	2008 –present
Chair of the West of Scotland Universities Research Training Alliance WestSURTA - members are Heads of Research Training Units and Research Careers Development for Glasgow University, Strathclyde University & GCU	2006 –present
Member of the Research Training Sub-Committee of Universities Scotland's Research and Knowledge Exchange Committee	2006 - present
Honourary Research Fellow, Dept of Physics and Astronomy, U of Glasgow, an RAE2008 4* rated department.	2004 - present
Referee for 6 international journals in astronomy and mathematics	1992 - present
Member of the steering committees of Scottish pooling Graduate Schools: Glasgow Research Partnership Engineering GRPEng Graduate School HealthQWest Graduate School (membership 5 Scottish universities in professions allied to Health, Allied Health Professions Research Unit and NHS Scotland).	2006 - present 2006 – 2009
Member of Scottish Universities Summer Schools in Physics SUSSP Governing Committee	1998 –present
Director of the Royal Society of Edinburgh (RSE), Robert Cormack Astronomy Meeting	1999
Member of the Robert Cormack Bequest Committee, Royal Society of Edinburgh	1996 - 1999

### **Hosting and Organisation of Advanced Study Institutes and Conferences**

Director and Co-editor of the international Cortina Series of Advanced Study Institutes ASIs: held every three years since 1972 and normally the only post-doctoral level ASI in Celestial Mechanics in Europe – with recent grants totalling £68k for the 2007 ASI from EPSRC, STFC, ESF, SUPA Scottish Universities Physics Alliance and SUSSP. Director of the last 4. Co-editor for the last 6. Partial funding obtained for the next one in 2013.	1987 - 2013
Director of the annual Glasgow Caledonian University Celebration of Research Colloquium	2006 - present
Director of the Royal Society of Edinburgh (RSE), Robert Cormack Astronomy conference	1999

**Publications: Astronomy** – 5 edited books, 2 review chapters, 18 journal papers, 10 conference papers  
**Graduate Education** – 1 conference paper

**Research Income:** Awarded £300k since 2000

**Graduate Education – Total £120k** - Scottish Funding Council (£32k), Vitae (£8k), Universities of Glasgow and Strathclyde (£60k), Universities of Edinburgh and Glasgow (£20k)  
**Astronomy - Total £180** - EPSRC/STFC/ESF joint (£43k), NATO (£71k), SUPA (£25k), SUSSP (£33k), British Council (£7.5k)

## **Current Research Projects:**

### **Graduate Education –**

1. Development and Implementation of the Researcher Development Framework (Vitae, £8k) 2008 – 2010; Partners – Vitae, Universities of Reading, Southampton
2. e-writing Project (Universities of Edinburgh, Glasgow £20k) 2009 – 2010 – Partners: Universities of Edinburgh and Glasgow
3. Employability of Doctoral Researchers in Social Sciences - PhD (SORSAS and University Studentship) 2009 - 2012
4. An Ethnographic Exploration of the Impact(s) of a Graduate School on the Post graduate Community and Culture(s) of a British University - PhD (University Studentship) 2007 - 2010

### **Astronomy –**

1. Scottish Universities Summer Schools in Physics (SUSSP): “The Asteroid, Comet and Space Debris Threat: Regular and Chaotic Dynamics of N-Body Gravitational Systems”, Cortina, Italy (SUSSP, £10k) 2011 – 2013
2. Close Encounters in the Caledonian Symmetric Four Body Problem, PhD (ORSAS and University Studentship) 2005 – 2010.

## **Invited speaker:**

**Graduate Education** – Invited speaker at 6 national conferences – UKCGE 2008; Vitae conference 2009; Vitae Policy Forum 2010; International Benchmarking – Research Degrees conference 2010; Vitae PT Researchers conference 2010; QAA/SFC/Vitae/HEA Graduate Schools and Postgraduate Experience Conference 2010 “The Impact of a University-wide Graduate School: A GCU case study”.

Recent Paper accepted - SRHE Postgraduate and New Researcher 2010 conference, Wales, Dec 2010.

“Graduate Schools: Portal and Gatekeeper”, Thorne S and Steves B A.

**Astronomy** – Invited keynote speaker at 12 conferences in Austria, Italy, France and Greece, representing most of the leading European conferences in Celestial Mechanics since 2000. Most recent, Alexander von Humboldt Colloquium for Celestial Mechanics, Bad Hofgastein, Austria, Mar 2011;

Recent Paper accepted - ICIAM, Vancouver, Canada, July 2011. “The Caledonian Symmetric Few Body Problem – a review”

## **International/National research collaborations**

**Graduate Education:** Vitae, University of Glasgow, University of Edinburgh, University of Strathclyde, University of Reading, University of Southampton.

**Astronomy:** Riparto di Planetologia CNR (Italy), Telespazio (Italy), Eotvos University (Hungary), Institute of Rochester (NY, USA), University of Zielona Gora (Poland), University of Hail (Saudi Arabia),

## **Research Supervision and Examination**

Completed 6 PhDs, 1 MPhil. 2 PhD students completed within an exemplary 3 years. Current supervision: 4 PhDs, 2 ProfDs. Subject areas – Director of Studies for Graduate Education 2, Astronomy 4; Mentor for new supervisors and second supervisor for Computing 1, Mathematics 4, Health Professions 2. Advisor of Studies for 8 ProfD's in taught Stage 1. Examiner for 5 PhDs, 1 MPhil. Chair of 1 PhD and 2 MPhil Vivas.

## **Teaching Leadership Highlights:**

### **Graduate Education**

Leader of The Graduate School Research Training programme, involving over 150 staff delivering professional and research skills training – includes over 50 ½ day interactive, experiential workshops, 6 short courses in research methods, 12 1 day courses in academic writing, 10 multi- day courses on Effective Research and Supervision and a 4 day local GradSchool;

Lead programme developer of the GCU Professional Doctorate and MRes frameworks and programmes for Health, Social Science, Business and Psychology;

Leader for workshops/courses on Doctoral education: Induction, Getting Started, Registering the Proposal, Effective Supervision series- PhD and ProfD, Internationalising your Research series, Making Research Connections;

Module leader for the 1.5 yr long Research Methods Prof D module involving teaching a broad range of Quantitative and Qualitative Designs;

### **Astronomy**

Module leader for 1<sup>st</sup> and 2<sup>nd</sup> yr modules on Astronomy and Planetary Science;

### **Researcher Staff Development Leadership Highlights:**

Leader for workshops/courses on Researcher Staff Development: Developing Your Research Career, Research Collaboration, Innovation Leadership for Researchers;

Mentoring and coaching for developing new supervisors and research leaders;

Guest staff developer on research leadership for the Glasgow Caledonian Career Development Centre for Academic Leadership offered in partnership with GCU's Organisational Development Dept.

**Public Outreach Activities:** invited to give multimedia talks to Science Festivals, astronomical societies, schools and interviews for newspapers, radio and TV. 1991 to present.

### **Esteem Indicators and Impact:**

#### **Graduate Education**

Since the creation of the Graduate School in 2006 - with Prof Steves as Director, in four years, GCU has:

1. Increased its research student numbers by 26%
2. Increased its research student completion rates by 17%
3. In the International Student Barometer Survey, the Graduate School was rated by international students at GCU at 96%. It was rated the 1<sup>st</sup> Graduate School in Scotland for 2009 and 2010 and rated 2<sup>nd</sup> out of the 74 participating universities worldwide in 2010.
4. GCU was one of the original three universities partnered with Vitae to research the skills and behaviours that make effective and excellent research students, researchers and research leaders. The resulting Researcher Development Statement RDS and Framework RDF launched by Vitae in 2010 is being used across the UK to help guide researchers in the development of their research careers. The RDS is endorsed by all Research Funding Councils, replacing the Research Councils Joint Skills Statement 2001.
5. GCU was winner of the Times Higher Education's *Outstanding Support for Early Career Researchers* award in 2010, with Universities Scotland partners – for achievements in delivering to all HEIs in Scotland the KE Step Change Programme (SFC funded £100k). The GCU Graduate School led one of three key strands: Innovation Leadership for Researchers.

### **Astronomy**

1. Prof Steves was recognized in the RAE2008 Applied Mathematics unit of assessment as the only small group entry of one to receive a world class (4\*) and international excellence (3\*) rating, with 5% research output rated overall at each of these top class levels. The research environment which includes student and staff researcher development, student numbers, completions and research income generation was rated 15% in each of these top class levels.

Detailed lists of research publications and income generation are available upon request.