

## CURRICULUM VITAE

**Batmanathan Dayanand (Daya) Reddy**

**July 2018**

University of Cape Town  
Department of Mathematics and Applied Mathematics

and

Centre for Research in Computational and Applied Mechanics  
7701 Rondebosch, South Africa

Tel: work + 27 21 650 3787

Fax: + 27 21 685 2281

Email: [daya.reddy@uct.ac.za](mailto:daya.reddy@uct.ac.za)

URL: <http://www.cerecam.uct.ac.za/people/bdr>

### **Education**

---

- 1970 – 1973 University of Cape Town: BSc(Eng) in Civil Engineering  
Degree awarded with first class honours
- 1974 – 1977 Cambridge University (Gonville and Caius College), United Kingdom:  
Doctoral studies in Mechanics; PhD degree awarded November 1977  
Dissertation: *The Elastic and Plastic Buckling of Circular Cylinders in Bending*

### **Honours and awards**

---

- 1974 – 1977 Smuts Trust Bursary for graduate research at Cambridge University
- 1992 Fellow of the Royal Society of South Africa
- 1992 Fellow of the University of Cape Town
- 1996 Member, Academy of Science of South Africa
- 2002 Fellow, South African Academy of Engineering
- 2004 Fellow, Academy of Sciences of the Developing World (TWAS)
- 2004 National Order of Mapungubwe (Bronze) bestowed by the President of the Republic of South Africa
- 2005 Member, Suid-Afrikaanse Akademie vir Wetenskap en Kuns
- 2006 Fellow, African Academy of Sciences
- 2008 Fellow, International Association for Computational Mechanics (IACM)
- 2009 South African Association for Computational and Applied Mechanics Award for Distinguished Service
- 2009 African Conference on Computational Mechanics Award for Outstanding Research
- 2012 Georg Forster Research Award of the Alexander von Humboldt Foundation, Germany
- 2016 South African Mathematical Society Award for Research Distinction

2016 Founding Fellow, Academy of Engineering and Technology of the Developing World (AETDEW)

### ***Employment***

---

1974 University of Cape Town: Junior Lecturer, Department of Civil Engineering

1978 University College London: Associate Research Assistant (Postdoctoral), Department of Civil and Municipal Engineering

1979 – 1998 University of Cape Town  
Departments of Applied Mathematics and Civil Engineering (joint appointment)  
Lecturer (1979 - 1981), Senior Lecturer (1982 - 1984), Associate Professor (1985 - 1987)  
Department of Applied Mathematics (since 1995, Mathematics and Applied Mathematics): Associate Professor (1988), Professor (1989 - )

1984 – UCT Centre for Research in Computational and Applied Mechanics (CERECAM)  
Deputy Director (1984 - 1994); Co-Director (1996 - 1999); Director (1999 - )

2002, 2008-9 Acting Deputy Vice-Chancellor (February – June 2002, July 2008 – March 2009)

1999 – 2005 University of Cape Town: Dean, Faculty of Science

2007 – South African Research Chair in Computational Mechanics (Department of Science and Technology, and National Research Foundation), tenable at University of Cape Town

2017 – 2018 Acting Deputy Vice-Chancellor (Teaching and Learning) (January – January)

### ***Visiting positions***

---

1982 Brunel University, Department of Mathematics (January - June).  
Host: Professor RW Ogden

1987 Università di Pavia, Istituto di Analisi Numerica del CNR (January - June)  
Host: Professor F Brezzi

1989 University of Minnesota, Institute for Mathematics and its Applications (January - February)

1991 Stanford University, Division of Applied Mechanics (October - November)  
Host: Professor JC Simo

1993, 1997 Universität Karlsruhe, Institut für Technische Mechanik and Universität Stuttgart, Mathematisches Institut A (2 months each in 1993 and 1997)  
Hosts: Professors E Schnack and W Wendland

2003 Queen's University, Canada; Visiting Professor, Southern African Research Centre (January)  
Hosts: Professors J Crush and P Oosthuizen

2006 The University of Texas at Austin, Institute for Computational Sciences and Engineering: Visiting Faculty Fellowship (1 month in September – October)  
Host: Professor J T Oden

2007 Technische Universität Kaiserslautern, Institut für Mechanik  
Host: Professor P Steinmann (February)

2009 Timoshenko Lecturer, Stanford University, Mechanics and Computation Group

Host: Professor A Lew (January)

2013 - 2016 Visiting Professor, Leibniz Universität Hannover, Institut für Kontinuumsmechanik (1-2 months annually between May and July)  
Host: Professor P Wriggers

---

***Membership of professional societies***

---

American Mathematical Society (AMS)  
Gesellschaft für Angewandte Mathematik und Mechanik (GAMM) (Germany)  
International Association for Computational Mechanics (IACM)  
Society for Industrial and Applied Mathematics (SIAM) (USA)  
Society of Rheology  
South African Mathematical Society (SAMS)  
South African Society for Numerical Mathematics (SANUM)  
South African Association for Theoretical and Applied Mechanics (SAAM)

---

***Service on professional committees and boards***

---

***University committees and positions (1995 to date)***

1996 – 2005	General Purposes Committee of Senate, (subsequently Senate Executive Committee)
1995 – 2005	Doctoral Degrees Board (occasionally Deputy Chair and Acting Chair) Service on selection committees for posts at executive level:
1995	Post of Vice-Chancellor: elected to serve by Senate; Chairperson
1996	Posts of Deputy Vice-Chancellor: elected by Senate; Chairperson
1999–2000	Post of Vice-Chancellor: nominated by deans
2001–2004	Posts of Deputy Vice-Chancellor: nominated by deans
1996–99, 2002–2008	UCT Council, elected to serve by Senate
2015 –	Advanced Computing Committee: Deputy chair

---

***National committees and activities (1995 to date)***

1997 – 2001	South African Mathematical Society: Member of Council
1996 – 2001	President, South African Association for Theoretical and Applied Mechanics
1997 – 2000	Chair, SA National Committee for the International Union of Mathematicians
1995 – 1997	Foundation for Research Development (FRD) Core Programme Evaluation Committee, Mathematical Sciences: Convenor
1995	FRD Committee for evaluating proposals in Mathematical Sciences, Open Programmes
1995 – 2000	Member, Rhodes Scholarships (South Africa-at-Large) Selection Committee
1996 – 2003	SA National Committee, International Union of Theoretical and Applied Mechanics: Chair
1996 – 2001	Academy of Science of South Africa: Council member
1998	General Assembly of the International Mathematical Union: South African delegate
1999 – 2008	Board of the National Research Foundation: Member, and Chair since July 2002

- 2002 – African Institute for Mathematical Sciences (AIMS), Cape Town: Trustee of the AIMS Trust, Member of the AIMS Council, and Associate Faculty member
- 2005 – Centre for High Performance Computing: Member of the Management Committee, and of the Scientific Advisory Committee (the latter since 2007)
- 2005 – 2008 Meraka Institute (Advanced African Institute for Information and Communications Technology), South Africa: Member of the Research Advisory Panel
- 2011 – 2014 Education Council of the Western Cape: Vice-Chair
- 2012 – 2016 President, Academy of Science of South Africa
- 2013 – Stellenbosch Institute for Advanced Study (STIAS): Academic Advisory Board

***International committees and activities***

- 2013 - InterAcademy Partnership (IAP) – Research: Co-chair
- 2013 - 2016 IAP, the Global Network of Science Academies: Executive Committee member
- 2014 - 2018 President-elect, ICSU (International Council for Science) (Sep. 2014); then (Nov. 2017 – Jul. 2018), Officer of the Executive Board
- 2018 – President, International Science Council

***Teaching experience and activities***

---

I have taught the following courses in the Department of Applied Mathematics (from 1995, Mathematics & Applied Mathematics) at UCT: partial differential equations, classical mechanics, calculus of several variables (2<sup>nd</sup> year), complex variables, tensor analysis, applied functional analysis, methods of mathematical physics (3<sup>rd</sup> year), continuum Mechanics, numerical analysis and scientific computing, methods of mathematical physics, finite elements (3<sup>rd</sup> and 4<sup>th</sup> years), Honours projects on topics in continuum mechanics, variational methods, and finite element analysis

I have taught courses at Masters level, at Cerecam, on finite element analysis, continuum mechanics, and on nonlinear material behaviour.

***Examining and reviewing activities***

---

These include the following:

External examiner for courses in applied mathematics and engineering at a number of South African universities, and as examiner for masters and doctoral dissertations submitted to universities in South Africa, Germany and France.

External panel member on reviews of departments or schools of mathematical sciences at the Universities of the Free State, Pretoria, the Witwatersrand, and Zululand, and of the faculty of science, University of Johannesburg

Member of the review team for the statutory 2009 institutional review of the University of Johannesburg.

Panel member for review of project proposals, Deutsche Forschungsgemeinschaft (DFG) (Germany)

## **Research interests**

---

My research interests lie at the intersection of continuum mechanics, applied functional analysis, and numerical analysis and computing. My research programmes address some or all of the following issues: the formulation in mathematical terms of problems in continuum mechanics; studies of the well-posedness of such problems; construction by computational means of approximate solutions; and studies of the quality of such approximations. I also have a serious involvement in finite element analysis *per se*. Recent major interests have been in the areas of plasticity, biomechanics, and mixed finite element methods.

I hold an A rating from the National Research Foundation.

## **Research appointees**

---

Professor J M-S Lubuma, FRD Research Fellow, July 1993 - June 1994  
Dr B-H Sun, Postdoctoral Researcher, July 1994 - June 1995  
Dr M Küssner, Postdoctoral Researcher, January 1996 - December 1997  
Ms D Kleine, Research Officer, July 1998 – February 2002  
Dr JMW Munganga, Postdoctoral Researcher, January 1999 – June 2001  
Dr F Ebobisse Bille, Postdoctoral Researcher, September 2002 – January 2004  
Dr JK Djoko, Postdoctoral Researcher, October 2004 – December 2005  
Dr NS Weerasekara, Postdoctoral Researcher, November 2006 - April 2008  
Dr AT McBride, Research Officer, July 2007 – February 2010  
Dr V Udoewa, Postdoctoral Researcher, September 2007 – August 2009  
Dr S Jasinowski, Postdoctoral Researcher, January 2009 – December 2011  
Dr O P Layeni, Postdoctoral Researcher, June 2010 – June 2012  
Dr A Appadu Rao, Postdoctoral Researcher, July 2010 – June 2011  
Dr M Kona, Postdoctoral Researcher, October 2011 – July 2012  
Dr P Singh, Postdoctoral Researcher, August 2012 – July 2013  
Dr M MacDevette, Postdoctoral Researcher, April 2014 – July 2016  
Dr M Malahe, Postdoctoral Researcher, June 2016 – May 2018  
Dr MF Wakeni, Postdoctoral Researcher, November 2016 –  
Dr HH Gidey, Postdoctoral Researcher, May 2017 –  
Dr BJ Grieshaber, Postdoctoral Researcher, July 2017 –

## **Postgraduate students**

---

*Students have been registered in the Faculty of Science except for those whose names are marked with an asterisk, and who were registered in the Faculty of Engineering and the Built Environment*

## **Masters students**

---

\*G A Duffett      1981      *Plastic buckling of initially imperfect cylinders in axial compression*

*G P Mitchell	1982	<i>A programming approach to the solution of problems involving elastic-plastic plates</i>
*A C Bolt	1983	<i>The use of a non-classical friction law in finite element analysis of contact problems</i>
*L R Watkins	1986	<i>Electromagnetic field solutions via the finite element method</i>
*R A Eve	1986	<i>Conforming finite element methods for static and eigenvalue problems of thin elastic shells</i>
H F du Toit	1986	<i>Finite element analysis of eigenvalue problems in the stability of fluid motions</i> Degree awarded with distinction
*M B Nates	1989	<i>Parameters affecting the performance of tube mills</i> (co-supervisor: Professor GN Nurick)
*K von Benthheim	1991	<i>Dynamics of balls in tube mills</i> (co-supervisor: Professor GN Nurick)
M B Volpi	1991	<i>Mixed finite element approximations for circular arches</i> Degree awarded with distinction
C le Roux	1991	<i>Mixed variational problems associated with viscous incompressible free surface flows</i> Degree awarded with distinction
K Arunakirinathar	1991	<i>Mixed finite element approximations for curved rods</i> Degree awarded with distinction
L H G Chandrasiri	1992	<i>The solution of steady-state free surface problems by the finite element method</i>
G C Schroeder	1993	<i>Estimates for the rate of convergence of finite element approximations of the solution of a time-dependent variational inequality</i> Degree awarded with distinction
*M A Stülpner	1995	<i>Various continuum bone remodelling algorithms applied to the proximal femur in two and three dimensions</i> (co-supervisor: A Spirakis)
*I MacKellar	1998	<i>The mechanical design aspects of a small diameter vascular prosthesis</i> (co-supervisor: G R Starke)
J K Diatezua	1999	<i>Some theoretical aspects of fibre suspension flows</i>
T Koch	2005	<i>Non-linear finite element analyses of the aortic heart valve</i>
H van der Merwe	2007	<i>Development of a numerical tool for the design optimization of vascular prostheses towards physiological compliance</i> MSc (Med) degree awarded with distinction (co-supervisor: Dr T Franz)
*S Bartle	2009	<i>Shell finite elements, with applications in biomechanics</i>

*KEW Penzhorn	2009	<i>Consistency and convergence of SPH approximations</i>
*EB Ismail	2009	<i>Smoothed particle hydrodynamics for nonlinear solid mechanics</i> (co-supervisor: Prof GN Nurick)
*Y Kajee	2010	<i>The biomechanics of the human tongue</i>
*HL Morrissey	2011	<i>The modelling of natural fibre-reinforced composites using a multi-scale methodology</i>
* L Adams	2011	<i>Finite element method using vector finite elements applied to eddy current problems</i> (co-supervisor: Prof A Wilkinson)
* NJN Richardson	2012	<i>An investigation into aspects of rate-independent single crystal plasticity</i>
J MBewu	2012	<i>Modelling of biomaterial therapies for infarcted hearts</i> (co-supervisor: Dr S Skatulla)
I Donev	2013	<i>Time-dependent finite element simulations of a generalized Oldroyd-B fluid</i> Degree awarded with distinction
T Povall	2013	<i>Single-crystal plasticity at finite strains: an investigation of hardening relations</i> (co-supervisor: Dr AT McBride) Degree awarded with distinction
*R Pauck	2014	<i>Computational analysis towards the design of biodegradable polymeric coronary artery stents</i> Degree awarded with distinction
*E Ssozi	2014	<i>The effect of viscoelastic deformation in pipe cracks on leakage response to variations in pressure</i> (Primary supervisor: Prof J van Zyl) Degree awarded with distinction
*G Gakingo	2016	<i>The impact of thermophysical properties on nanofluid-based solar collector performance</i> (co-supervisor: Dr M MacDevette) Degree awarded with distinction
NM Musehane	2016	<i>Direct numerical simulation of bubble-bubble and droplet-droplet interactions using a surface thin film model</i> (co-supervisor Dr O Oxtoby)
*W Guess	2016	<i>Fluid structure interaction modelling of a patient-specific arteriovenous access fistula</i> (co-supervisor Dr AT McBride) Degree awarded with distinction
*MM Shirzadi	2016	<i>Development of a patient-specific finite element model of the transcatheter aortic valve implantation (TAVI) procedure</i> (co-supervisor Dr H Appa)

K Etekpo                      2017    *Numerical solution for subsurface reservoir simulation*  
(co-supervisor Dr A Tambue)

***Doctoral students***

---

\*G A Duffett                      1985    *Some aspects of the numerical solution of equilibrium problems in finite elasticity*

\*T B Griffin                      1986    *Variational and numerical aspects of problems in classical plasticity*

G P Bleach                      1989    *Acceleration waves in constrained thermoelastic media*

T Gültop                      1992    *A finite strain theory of elastoplasticity and its application to wave propagation*

R A Eve                      1992    *Theoretical and numerical aspects of problems in finite strain plasticity*

\*A Ozinsky                      1993    *Mathematical simulation of dynamic behaviour of secondary settling tanks*  
(Primary supervisor: Prof GA Ekama)

H de G Laurie                      1994    *Nonlinear age-dependent population dynamics*  
(co-supervisor: Prof R Cowling)

\*W J de Kock                      1994    *Numerical simulation of the plastics injection molding process*  
(co-supervisor: Professor JB Martin)

K Arunakirinathar                      1995    *Mathematical and numerical aspects of the enhanced strain finite element method*

J M W Munganga                      2000    *Existence and stability of solutions to the equations for fibre suspension flows*

B J L Brown                      2001    *A variational approach to local optimality in control theory*

S K F Hattingh                      2002    *Finite element analysis of flows in fractured hydrocarbon reservoirs*

\*D Kleine                      2003    *Finite element analysis of flows in secondary settling tanks*

\*M S Yeoman                      2004    *The design and optimisation of fabric reinforced grafts using finite element methods and genetic algorithms*

M S Tladi                      2004    *Well-posedness and long-time dynamics of  $\beta$ -plane ageostrophic flows*

J K Djoko                      2004    *Convergence in the incompressible limit of finite element approximations based on the Hu-Washizu formulation in elasticity*

\*A T McBride                      2008    *Formulation, analysis and solution algorithms for a model of gradient plasticity within a discontinuous Galerkin framework*

Q Reynolds                      2009    *Mathematical and computational modeling of the behaviour of direct current plasma arcs*



RL Benjamin	2010	<i>Non-maximum entropy polymer elasticity theory, viscoelasticity, and the lattice Boltzmann method</i>
HBH Mohamed	2012	<i>Properties of solutions of the equations for generalized Oldroyd-B fluids</i>
BJ Grieshaber	2013	<i>Locking-free discontinuous Galerkin methods for problems in elasticity, using linear and multilinear approximations</i>
A Chama	2014	<i>Three-field mixed finite element approximations for problems in elasticity</i>
*J-P Pelteret	2014	<i>A computational neuro-muscular model of the human upper airway with application to the study of obstructive sleep apnoea</i>
*AEJ Bogaers	2015	<i>Efficient and robust partitioned solution schemes for fluid-structure interactions</i> (co-supervisors: Profs S Kok and T Franz)
MF Wakeni	2016	<i>Stable algorithms for generalized thermoelasticity based on operator-splitting and time-discontinuous Galerkin finite element methods</i> (co-supervisor: Dr AT McBride)
*AM de Villiers	2017	<i>A patient-specific FSI model for vascular access in haemodialysis</i> (co-supervisor: Dr AT McBride)

### **Current postgraduate students**

N Mhlongo	MSc	<i>Computational investigations of strain-gradient plasticity</i>
*N Vundla	MSc (Eng)	<i>Viscoelastic fluid models of blood flow</i>
*D van Huyssteen	MSc (Eng)	<i>The Virtual Element Method applied to problems of transversely isotropic elasticity</i>
*B Alheit	MSc (Eng)	<i>Mechanical behaviour of turtle shells</i>
*E Griffiths	PhD	<i>Modelling and analysis of nanocomposites</i> (co-supervisor: Prof. S Bargmann)
JO Bergh	PhD	<i>On the evaluation of common design metrics for the optimization of non-axisymmetric endwall contours for a 1-stage turbine rotor</i> (co-supervisor: Dr. G Snedden)
F Rasolofoson	PhD	<i>Discontinuous Galerkin methods for transversely isotropic elasticity</i>
*M Hamed	PhD	<i>Finite element analysis of friction stir welding</i>

*EB Ismail	PhD	(co-supervisor: Dr AT McBride) <i>Numerical models for strain-induced crystallization</i>
*KEW Penzhorn	PhD	<i>Virtual element methods with applications in plasticity</i>
*T Povall	PhD	<i>Dense granular flow in rotating drums: a computational investigation of constitutive equations</i> (co-supervisors: Prof. I Govender, Dr. S Wheaton, Dr. AT McBride)
*A Mabentsela	PhD	<i>Numerical modelling of furnace freeze lining fracture under thermal load in Ilmenite smelting operations</i> (co-supervisors: Prof. A Mainza, Dr. Q Reynolds)

---

### ***Research colloquia***

I have presented colloquia on my research at the following institutions:

- Canada:** Queen's University, Kingston, Ontario
- China** Peking University
- Germany:** Technische Hochschule Darmstadt, Universität Karlsruhe, Universität Hannover, Universität Stuttgart, Technische Universität Kaiserslautern, Humboldt Universität Berlin, Universität Duisburg-Essen, Technische Universität Braunschweig
- India:** Tata Institute for Fundamental Research (Bangalore, India), Indian Institute of Technology (Madras)
- Italy:** Università di Pavia, Politecnico di Milano
- South Africa:** University of Cape Town (Departments of Applied Mathematics, Civil Engineering, Chemical Engineering, Mathematics, Physics), University of the Western Cape, University of Durban-Westville, University of Pretoria, University of Transkei, University of Kwazulu-Natal, National Research Institute for Mathematical Sciences (CSIR, Pretoria), University of South Africa
- Switzerland:** Eidgenössische Technische Hochschule (ETH) (Zürich)
- United Kingdom:** Brunel University, University of Bath, University of East Anglia, University of Nottingham, University of Glasgow
- USA:** Brown University, Carnegie-Mellon University, The University of Texas at Austin, Massachusetts Institute of Technology, Oregon State University, Stanford University, Texas A&M University, University of California at Berkeley, University of Houston

---

### ***Presentations at conferences***

---

**Invited and keynote presentations (2009 to date)**

1<sup>st</sup> African Conference on Computational Mechanics, Sun City, South Africa, 7 – 11 January 2009: *'Variational and computational aspects of problems in single- and polycrystal gradient plasticity'*

12<sup>th</sup> Symposium on Computer Simulation in Biomechanics, Cape Town, 2 – 4 July 2009: *'Mathematical modeling, scientific computation, and biomechanics'*

2<sup>nd</sup> African Conference on Computational Mechanics, Cape Town, South Africa, 5 – 8 January 2011: *'A unified approach to mixed finite elements: the Hu-Washizu formulation and extensions'*

82<sup>nd</sup> Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Graz, 18 – 21 April 2011: *'Some variational and computational aspects of problems for gradient plasticity'*

2<sup>nd</sup> Joint International Meeting of the American Mathematical Society and the South African Mathematical Society, Port Elizabeth, South Africa, 29 November – 3 December 2011: *'Mixed finite element approximations'*

Advances in Computational Science, Engineering and Mathematics (Symposium in honor of the 75<sup>th</sup> birthday of JT Oden), 19 – 20 January 2012: *'Stable mixed finite element approximations in elasticity'*

International Conference on Applications of Fluid Dynamics, University of Botswana, 27 – 28 September 2012: *'Computational aspects and stability of flows of viscoelastic fluids'*

Southern Africa Mathematical Sciences Association (SAMSA) Meeting, Stellenbosch, South Africa, 25 – 29 November 2013: *'Finite element approximations in solid and fluid mechanics'*

International Congress of Mathematicians (ICM), Seoul, Korea, 13 – 21 August 2014 (Sectional Invited Lecture): *'Numerical approximation of variational inequalities arising in elastoplasticity'*

International Conference on Computational Methods in Applied Mathematics, St. Wolfgang, Austria, 29 September – 3 October 2014: *'Stable three-field mixed approximations in nonlinear elasticity'*

1<sup>st</sup> International Conference on Emerging Trends in Applied Mathematics and Mechanics, Perpignan, France, 30 May – 3 June 2016: *'Strain-gradient plasticity under conditions of non-proportional loading'*

6<sup>th</sup> IASTED African Conference: Modelling and Simulation, Gaborone, Botswana, 5 – 7 September 2016: *'Modelling, computational simulation, and biomechanics'*

1<sup>st</sup> BRICS Mathematics Conference, Beijing, China, 21 – 25 August 2017: *'Modelling, analysis and computation in plasticity'*

2<sup>nd</sup> International Conference on Emerging Trends in Applied Mathematics and Mechanics, Krakow, Poland, 18 – 21 June 2018: *'Analytical and numerical investigations of locking in transversely isotropic elasticity'*

**Presentations at specialist workshops (2009 to date)**

Meeting on 'Advanced Computational Engineering', Mathematisches Forschungsinstitut Oberwolfach, Germany, 12 – 17 February 2012: *'Three-field mixed methods in elasticity: old and new'*

Meeting on 'Rate-independent systems: Modeling, Analysis, and Computations' Banff International Research Centre, Canada, 29 August – 3 September 2010: *'Some models of strain gradient crystal plasticity and their variational characterization'*

Schöntal Symposium on 'Dislocation based Plasticity', 26 February – 1 March 2018: '*Some investigations of energetic and dissipative theories of strain-gradient plasticity*'

### **Local conferences**

I am a regular contributor to the following local conferences: Annual Congresses of the SA Mathematical Society, Annual Symposia of the SA Society for Numerical Mathematics, and SACAM (SA Conferences on Applied Mechanics)

### **Membership of conference committees (2009 to date)**

ECCM2010, Fourth European Conference on Computational Mechanics, Paris, 16 – 21 May 2010: International Advisory Board member

Second International Conference on Computational and Mathematical Biomedical Engineering, George Mason University, USA, 30 March - 1 April 2011: International Advisory Board member

11<sup>th</sup> International Conference on Computational Plasticity, Barcelona, 7 – 9 September 2011: Advisory Scientific Committee member

European Congress on Computational Methods in Applied Sciences and Engineering, Vienna, Austria, 10 – 14 September 2012: Scientific Committee member

12<sup>th</sup> International Conference on Computational Plasticity, Barcelona, 7 – 9 September 2013: Advisory Scientific Committee member

African Conferences on Computational Mechanics (2009, 2011, 2013): At various times conference chair and organizing committee member

The 8th International Conference on Computational Methods (ICCM2017), Guilin, China, 25 – 29 July 2017: International Scientific Advisory Committee member

International Conference on Industrial and Applied Mathematics (ICIAM) 2019: Scientific Program Committee member

### **Editorial and review activities**

---

#### **Reviewing activities:**

Evaluations for the National Research Foundation and the National Science Foundation (USA)

Springer-Verlag (New York and Berlin): book manuscripts

Research articles submitted to the journals

*Applied and Numerical Mathematics*

*Archive for Rational Mechanics and Analysis*

*Communications in Numerical Methods in Engineering*

*Computational Mechanics*

*Computer Methods in Applied Mechanics and Engineering*

*Computers and Structures*

*European Journal of Mechanics: A/Solids*

*Journal of the Mechanics and Physics of Solids*  
*Indian Journal of Pure and Applied Mathematics*  
*International Journal for Engineering Analysis and Design*  
*International Journal of Engineering Science*  
*International Journal for Numerical Methods in Engineering*  
*International Journal of Plasticity*  
*International Journal of Solids and Structures*  
*Mathematical Models and Methods in Applied Sciences*  
*Numerische Mathematik*  
*Numerical Methods for Partial Differential Equations*  
*Quarterly of Applied Mathematics*  
*The Royal Society of Edinburgh Proceedings A (Mathematics)*  
*SIAM Journal on Applied Mathematics*  
*SIAM Journal on Numerical Analysis*  
*Water SA*  
*Zentralblatt für Mathematik*

**Membership of Editorial Boards or Advisory Boards:**

*Acta Academica Solida Sinica*  
*Engineering Analysis and Design*  
*Computer Methods in Applied Mechanics and Engineering*  
*Computers and Structures*  
*International Journal for Computational Civil and Structural Engineering (Russia)*  
*Journal of Applied Mathematics and Statistics*  
*International Journal of Computational Methods in Engineering Science and Mechanics*  
*Trends in Mathematics*  
*Journal of the Mechanical Behavior of Solids*  
*Computational Mechanics*

**Publications**

Approximately 180 publications including four monographs and three edited volumes of invited papers:  
see <http://www.cerecam.uct.ac.za/people/bdr/publist>