NORTH-WEST UNIVERSITY

(POTCHEFSTROOM CAMPUS)

SCHOOL OF MECHANICAL AND NUCLEAR ENGINEERING

CURRICULUM VITAE

Prof CG du Toit

April 2019

CURRICULUM VITAE

1. Name: Charl Gabriël de Kock du Toit
2. Birthdate: 16 June 1951
3. ID number: 5106165009085
4. Birthplace: Ndola, Zambia
5. Marital state: Married, 4 children.
6. School (matric):
   - 1969 – Paul Roos Gymnasium
   - Member of Student's Council, Headboy of School residence
   - Senior Certificate with distinction
7. Academic qualifications:
   - B.Eng.(Hons)(Civil)(Cum Laude) (Stell) 1975
   - M.Eng.(Civil) (Stell) 1977
   - Ph.D. (Cantab) 1980
8. Awards / Achievements:
   - Merit scholarship from Cape Province Department of Education for distiction in matric exam : 1970.
   - Scholarship from South African Railways and Harbours for undergraduate study in engineering : 1971–1975
   - Several merit scholarships for academic achievement during undergraduate study at the University of Stellenbosch : 1971–1975.
   - CSIR postgraduate scholarship for study at the University of Cambridge : 1977–1980.
   - Sir Henry Strakosch Stipend for postgraduate study at the University of Cambridge : 1977–1980.
   - Receive a C rating from FRD as researcher : 1995
   - Receive a C3 rating from FRD as researcher : 1999
   - Receive a C2 rating from NRF (previously FRD) as researcher : 2005,2010
   - Receive a C1 rating from NRF as researcher : 2017
   - Receive VERKA Teaching Award : 1995
   - Receive research grant from FRD : 1996 – 2000
   - Receive research grant from Eskom TESP : 1996 – 2004
   - Receive research grant from FRD/THRIP : 1997 – 2001
   - Receive research grant from WRC : 1999–2002
   - Receive research grant from NRF/THRIP : 2008 – 2015
   - Receive SARChI award from DST/NRF : 2015 – present.
   - Included in Who's Who in Science and Engineering: Editions from 2003–present.
9. Membership of Institutes:

- Member of South African Institute of Civil Engineers
- Member of The South African Academy for Science and Art
- Member of the South African Association for Theoretical and Applied Mechanics.
- Member of the International Association for Computational Mechanics
- Member of the European Academy of Sciences

10. Professional Registration:

    Pr.Eng. 1985, Engineering Council of South Africa.

11. Professional Experience:

    - Dec 1975 – Jan 1977 : Assistant Engineer (Habour New Works), SA Transport Services, Cape Town. Involved in supervision over the construction of Ben Schoeman dock in Cape Town harbour.
    - Feb 1977 – Dec 1988 : Lecturer and Senior Lecturer, Department of Civil Engineering, University of Stellenbosch. Involved in several hydraulic and numerical model studies and design on a consulting basis.
    - Jan 1989 – Sept 1992 : Chief Engineer (Head : Computational Fluid Dynamics), Bureau for Mechanical Engineering, University of Stellenbosch. Responsible for establising the group. Involved in several analysis and technology projects.
    - Oct 1992 – Mar 1993 : Chief Research Officer, Department of Mechanical Engineering, University of Stellenbosch. Responsible for the numerical simulation of thermo-flow problems.
    - Apr 1993 – Dec 1999 : Associate Professor, School of Mechanical and Materials Engineering (previously : Department of Mechanical Engineering), Potchefstroom University for CHE. Teach strength of materials and finite element methods at undergraduate level and finite element methods at post-graduate level. Involved in numerical modelling of thermo-flow problems.
    - Jan 2000 – Des 2014 : Professor, School of Mechanical and Nuclear Engineering, North-West University(formerly: Potchefstroom University for CHE). Teach strength of materials and finite element methods at undergraduate level and finite element methods at post-graduate level. Involved in numerical modelling of thermo-flow problems.
    - Jan 2015 – Dec 2015: Acting SARChI Chair in Nuclear Engineering. Involved in teaching of finite element methods at post-graduate level. Involved in numerical modelling of thermo-flow problems with the focus on high temperature gas-cooled reactors.
    - Jan 2016 – current: SARChI Chair in Nuclear Engineering. Involved in teaching of finite element methods at post-graduate level. Involved in numerical modelling of thermo-flow problems with the focus on high temperature gas-cooled reactors.
    - Feb 1997 – Jun 2001 : Head, Computational Mechanics Laboratory (previously : Director, Unit for Computational Mechanics), School of Mechanical and Materials Engineering, PU for CHE.
    - Jul 2001 – Dec 2002 : Group leader, Group for Mechanical Energy Systems, Research Focus Area for Energy Systems, Potchefstroom University for CHE.
    - Jan 2003 – Dec 2007 : Director, School of Mechanical Engineering, North-West University (formerly: Potchefstroom University for CHE).
    - Jan 1987 – Dec 1989 : Consultant, Atomic Energy Corporation. Involved in computational fluid dynamics.

- Jan 1991 – Jan 1992 : Temporary lecturer, Department of Mechanical Engineering, Potchefstroom University for CHE. Present postgraduate course in finite element methods in fluids.
- Jan 1991 – Dec 2000 : Consultant, ISCOR. Involved in training and consultation in computational fluid dynamics.
- Sept 1991 – Dec 1993 : Consultant, Council for Nuclear Safety. Involved in training in computational fluid dynamics.
- May 1992 – Feb 1995 : Consultant, EMATEK, CSIR. Involved in training in finite element methods in fluids.
- Apr 1993 - present : Corporate Consultant, M-Tech Industrial (previously : M-Tech Consulting Engineers). Involved in consulting in thermo-fluids problems.
- Febr 1999 – 2010 : Consultant, Eskom/PBMR. Involved in consultation on thermoflow problems.
- June 2008 – 2012 : Consultant, Necsa. Involved in consultation of thermoflow problems.
- Sep 2016 – Feb 2018 : Consultant, Eskom. Involved in consultation on thermoflow problems.

12. Academic Experience:

- Feb 1977 – Sept 1981 : Lecturer, Department of Civil Engineering, University of Stellenbosch. On study leave from Oct 1977 to Oct 1980 for postgraduate studies at the University of Cambridge.
- Oct 1981 – Dec 1988 : Senior Lecturer, Department of Civil Engineering, University of Stellenbosch.
- Apr 1993 – Dec 1999 : Associate Professor, School of Mechanical and Materials Engineering (previously : Department of Mechanical Engineering), Potchefstroom University for CHE.
- Jan 2000 – present : Professor, School of Mechanical and Nuclear Engineering, North-West University (formerly: Potchefstroom University for CHE).
- Teach several courses on undergraduate and postgraduate level in civil engineering hydraulics, coastal engineering, fluid mechanics, strength of materials, structural analysis and physical and numerical modelling.
- Assist several Ph.D. and M.Eng. students at the University of Stellenbosch, North-West University (formerly: Potchefstroom University for CHE), University of Pretoria and University of Port Elizabeth.
- Internal and external examiner for several master's and doctoral theses at US, UPE, UP, UCT, NWU (formerly: PU for CHE), Wits and Central University of Technology.
- 1991 : Temporary lecturer, Department of Mechanical Engineering, Potchefstroom University for CHE. Teach course in finite element methods in fluids.

13. Service to University:

- University of Stellenbosch:
  - Member of Time-Table Committee, Faculty of Engineering, 1982
  - Chairman of Time-Table Committee, Faculty of Engineering, 1983
  - Member of Curriculum Committee, Faculty of Engineering, 1983
  - Member of Computer Facility Committee, Faculty of Engineering, 1985–1986.

  - Member of Committee regarding Parallel Computations, Faculty of Engineering, 1988–1993.
- North-West University (formerly: Potchefstroom University for CHE):
  - Member of Board of Unit for Computational Mechanics, 1993–2001
  - Member of Teaching Committee, Faculty of Engineering, 1994–1998
  - Member of Faculty Board, Faculty of Engineering, 1994– present
  - Committee Member : Potchefstroom University Staff Society, 1994–1997
  - Member of Philosphy of Science Committee, Faculty of Engineering, 1994–2005
  - Chairman, Philosophy of Science Committee, Faculty of Engineering, 1996–2002
  - Member of Advisory Committee for Reformatorial Science (previously : Senate Committee on Reformatorial Science), 1996–2002
  - Member of Computer Committee, Faculty of Engineering, 1996–2004
  - Head of Computational Mechanics Laboratory (previously : Director of Unit for Computational Mechanics), 1997–2001
  - Member of Research Committee, Faculty of Engineering, 1998– present
  - Member of the Senate, March 2000–2007.
  - Group leader of Group for Mechanical Energy Systems, Research Focus Area for Energy Systems, 2001–2002
  - Member of the Research Evaluation Committee, Jan 2002–2004.
  - Acting Director, School of Mechanical and Materials Engineering, Jan–Jun 2002
  - Director, School of Mechanical Engineering, Jan 2003–Dec 2007.
  - Acting SARChI Chair in Nuclear Engineering, Jan 2015–Dec 2015.
  - SARChI Chair in Nuclear Engineering, Jan 2016–present.

14. Service to Institutes and Professional Bodies:

- Member of the South African National Engineering Committee on Oceanic Resources, 1983–1987.
- Member of the Committee of the Western Cape Branch of the South African Institute of Civil Engineers, 1986–1987.
- Member of the Council of the South African Association for Theoretical and Applied Mechanics (Co-founder, secretary, vice-president, president), 1993– 2010. [President: 2008–2010].
- Member of the South African National Committee for the International Union for Theoretical and Applied Mechanics (secretary, vice-chairman, chairman), 1994–2010. [Chairman: 2008–2010]
- Member of the General Assembly of the International Union for Theoretical and Applied Mechanics, 1996 – 2010.
- Member of the Advisory Board, African Institute for Mathematical Sciences, Aug 2002– Dec 2005.
- Member of the Editorial Board of the *R & D Journal*, 2004 – present.
- Member of the Assembly for International Heat Transfer Conferences, 2005 – present.
- Member of the Editorial Board of the international journal *Computational Thermal Sciences*, 2007 – present.

- Member of the Scientific Council of the Internatonal Centre for Heat and Mass Transfer, 2008 – present.
- Member of the Editorial Board of the national journal *Koers (Bulletin for Christian Scholarship)*, 2009 – 2011.
- Member of the Editorial Advisory Board of *LitNet Akademies*, 2010 – 2011.
- Member of the International Organising Committee of the International Topical Meetings on High Temperature Reactor Technology, Oct 2014 – present.

15. Research:

(a) Investigations:

- 1976–1977 : Numerical modelling of wave refraction problems.
- 1977–1984 : Experimental investigations of flow patterns and other phenomena in hydraulic and coastal engineering.
- 1985– present : Numerical modelling of thermoflow problems using finite element, finite volume and finite difference methods.
- 1987 : Sabbatical leave at the Atomic Energy Corporation. Research into and the development of finite element programmes for the numerical simulation of flow problems and particle–fluid interaction.

(b) Service:

- Member of the Technical Advisory Panel of the Eighteenth International Coastal Engineering Conference, Cape Town, Nov 1982.
- Member of the Organizing Committee of the First National Symposium on Computational Fluid Dynamics, Pretoria, Nov 1988.
- Member of the Organizing Committee of the Ninth Symposium on Finite Element Methods in South Africa, Stellenbosch, Feb 1989.
- Organize a short course on Turbulence Modelling in Computational Fluid Dynamics presented by Prof JA Schetz of Virginia Polytechnic Institute, Stellenbosch, Feb 1989.
- Chairman of the South African PHOENICS User Group since Jan 1990 – Dec 1992.
- Member of the Organizing Committee of the Second National Symposium on Computational Fluid Dynamics, Vereeniging, Jun 1991.
- Co-presenter with Prof JT Oden of a Workshop on Finite Elements in CFD, Vereeniging, Jun 1991.
- Member of the Organizing Committee of the First International Numerical Heat Transfer Conference and Software Show, Guildford, England, Jul 1991.
- Member of the Technical Advisory Panel for the Eleventh Symposium on Finite Element Methods in South Africa, Cape Town, Jan 1992.
- Chairman of the Organizing Committee for the Third National Symposium on Computational Fluid Dynamics, Stellenbosch, Jun 1993.
- Member of the Technical Advisory Panel for the Thirteenth Symposium on Finite Element Methods in South Africa, Stellenbosch, Jan 1995.
- Member of the Organizing Committee for the First South African Conference on Mechanics '96, Jul 1996.
- South African representative at the General Assembly of the International Union for Theoretical and Applied Mechanics, Kyoto, Japan, Aug 1996.
- Member of the Organizing Committee for the Second South African Conference on Mechanics '98, Jan 1998.

- South African representative at the General Assembly of the International Union for Theoretical and Applied Mechanics, Stuttgart, Germany, Aug 1998.
- Member of the Organizing Committee for the Third South African Conference on Mechanics SACAM 2000, Jan 2000.
- South African representative at the General Assembly of the International Union for Theoretical and Applied Mechanics, Chicago, USA, Aug 2000.
- Organise short course on Computational Fluid Dynamics for Two-Phase Flows presented by Prof JAM Kuipers of University of Twente, Potchefstroom, Oct 2000.
- South African representative at the General Assembly of the International Union for Theoretical and Applied Mechanics, Cambridge, UK, Aug 2002.
- Co-chair of the Organizing Committee for the Fourth South African Conference on Mechanics SACAM 2004, Jan 2004.
- South African representative at the General Assembly of the International Union for Theoretical and Applied Mechanics, Aug 2004, Warsaw, Poland.
- Member of the Scientific Committee of the 5th SA Conference on Applied Mechanics SACAM06, held in Jan 2006, Cape Town.
- Member of the Advisory Board of the Seventh World Congress on Computational Mechanics held in Jul 2006, San Fransisco, USA.
- South African representative at the meeting of the Assembly for International Heat Transfer Conferences, held in Aug 2006, Sydney, Australia.
- Member of the International Scientific Committee of the 13th International Heat Transfer Conference IHTC13, held in Sydney, Australia, August 2006.
- Member of the Organizing Committee for the 3rd International Topical Meeting on High Temperature Reactor Technology – HTR2006, held in October 2006, Johannesburg, South Africa.
- Member of the Technical Advisory Board of the 9th US National Congress on Computational Mechanics, held in July 2007, San Francisco, USA. Also co-chairman of a minisymposium on teaching if finite elment methods at undergraduate level.
- Member of the Scientific Advisory Board of the 3rd Asian-Pacific Congress on Computatonal Mechanics (APCOM'07) in conjunction with the 11th International Conference on Enhancement and Promotion of Computational Methods in Engineering and Science (EPMESC XI) held in December 2007, Kyoto, Japan.
- Member of the Scientific and Advisory Committee of the 6th SA Conference on Computational and Applied Mechanics SACAM08, held in March 2008, Cape Town.
- Member of the International Scientific Committee 4th International Symposium on Advances in Computational Heat Transfer, held in May 2008, Marrakech, Morocco.
- South African representative at the General Assembly of the International Union for Theoretical and Applied Mechanics, Aug 2008, Adelaide, Australia.
- Member of the International Advisory Committee of the 1st African Conference on Computational Mechanics Africomp'09, held in Jan 2009, Sun City, South Africa.
- Member of the Scientific Committee of the 7th SA Conference in Computational and Applied Mechanics SACAM10, held in January 2010, Pretoria.
- Co-track chair for 14th International Heat Transfer Conference IHTC14, held in Washington DC, August 2010.

- Member of the International Scientific Committee of the 14th International Heat Transfer Conference IHTC14, held in Washington DC, August 2010.
- Member of the Scientific Committee of the 8th SA Conference in Computational and Applied Mechanics SACAM2012, held in September 2012, Johannesburg.
- Member of the International Advisory Committee of the 3rd African Conference on Computational Mechanics AfriCOMP'13, held in July 2013, Livingstone, Zambia.
- Member of the Scientific Committee of the 9th SA Conference in Computational and Applied Mechanics SACAM2014, held in January 2014, Somerset-West.
- Member of the International Scientific Committee of the 15th International Heat Transfer Conference IHTC15, held in Kyoto, Japan, August 2014.
- Member of the International Advisory Committee of the 4th African Conference on Computational Mechanics AfriCOMP'15, held in January 2015, Marrakech, Morocco.
- Chair of the Organizing Committee for the 10th South African Conference on Mechanics SACAM2016 to be held in Potchefstroom, South Africa, October 2016.
- Member of the International Scientific Committee of the 16th International Heat Transfer Conference IHTC16, held in Beijing, China, August 2018.
- Reviewer for several international and national journals.
- Reviewer for NRF to evaluate researchers and applications for funding.

16. Dissertations:

    - DU TOIT, C.G. 1977. The calculation of wave refraction using a computer progamme. Stellenbosch : University of Stellenbosch (Dissertation – M.Eng.)(In Afrikaans).
    - DU TOIT, C.G. 1980. Velocities close to a bed of sand in oscillatory flow. Cambridge : University of Cambridge (Thesis – Ph.D.)

17. Books:

    - DU TOIT, C.G. & VON BACKSTRÖM, T.W., eds. 1993. Proceedings of Third National Symposium on Computational Fluid Dynamics organised by University of Stellenbosch. Stellenbosch.
    - IWANKIEWICZ, R., DU TOIT, C.G. & CRAIG, K., eds. 2004. SACAM'04 : Proceedings of Fourth South African Conference on Applied Mechanics organised by University of Witwatersrand, Potchefstroom University for CHE, University of Pretoria & CSIR. Johannesburg [CD-ROM : ISBN 1-86838-336-9].

18. Publications in journals and refereed conferences:

    - DU TOIT, C.G. & SLEATH, J.F.A. 1981. Velocity measurements close to rippled beds in oscillatory flow. *Journal of Fluid Mechanics*, 112:71–96.
    - POOL, C.H., VON BACKSTRÖM, T.W. & DU TOIT, C.G. 1991. Tracking the Canard Tip Vortices of a Missile Model. *Aeronautica Meridiana*, 9:23–44.
    - DU TOIT, C.G. 1992. Numerical Modelling of an Annular Dump Diffuser. *Aeronautica Meridiana*, 10:93-104.
    - DU TOIT, C.G. & KRÖGER, D.G. 1993. Modelling of the Recirculation in Mechanical–Draught Heat Exchangers. *R&D Journal*, 9:2-8.

- DU TOIT, C.G., THIART, G.D. & KRÖGER, D.G. 1993. Analysis of Recirculation in Mechanical-Draught Heat Exchangers. (*In* Kelleher, M.D., Shah, R.K., Sreenivasan, K.R. and Joshi, Y., *eds.* Experimental Heat Transfer, Fluid Mechanics and Thermodynamics 1993 : Proceedings of the 3rd World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics held in Honolulu on 31 Oct – 5 Nov 1993. Amsterdam : Elsevier. vol. 1, p. 377 – 384.)
- VAN NIEKERK, W.M.K., DU TOIT, C.G. & SCHEFFLER, T.B. 1996. Performance modelling of a parallel tube polymer absorber. *Solar Energy*, 58:39–44.
- DU TOIT, C.G. 1998. Finite element solution of the Navier-Stokes equations for incompressible flow using a segregated algorithm. *International Journal for Computer Methods in Applied Mechanics and Engineering*, 151:131–141.
- DU TOIT, C.G. 1998. Setting up the cell neighbour array and the list of external faces for a finite volume mesh. *R & D Journal*, 14:1–7.
- DU TOIT, C.G. 2000. A segregated finite element solution for non-isothermal flow. *International Journal for Computer Methods in Applied Mechanics and Engineering*, 182:457–481.
- KRUGER, J-H. & DU TOIT, C.G. 2001. Modelling of an electrostatic precipitator using an Euler / Lagrange approach. *R & D Journal*, 17:8–17.
- DU TOIT, C.G. 2001. The pebble-bed nuclear powerstation – significance for South Africa. *Word and Action*, 376:22–25. (In Afrikaans)
- DU TOIT, C.G. 2001. Finite element calculation of friction factors and Nusselt numbers for rectangular ducts. (*In* Davis, G. de V. & Leonardi, E., *eds.* CHT'01 Advances in Computational Heat Transfer II : Proceedings of the 2nd International Symposium on Advances in Computational Heat Transfer held in Palm Cove, Australia on 20–25 May 2000. New York : Begell House, p. 583–590.)
- DU TOIT, C.G. 2002. Calculation of friction factors and Nusselt numbers for laminar flow in rectangular ducts using finite elements. *Numerical Heat Transfer : Part B - Fundamentals*, 41:397–407.
- DU TOIT, C.G. 2002. The pebble-bed reactor: effect of wall channeling on the flow in the core. (*In* Meyer, J.P., *ed.* HEFAT 2002 Heat Transfer, Fluid Mechanics and Thermodynamics : 1st International Conference on Heat Transfer, Fluid Mechanics, and Thermodynamics held in Skukuza, Kruger Park on 8–10 April 2002. Centurion : HEFAT, vol. 1, p. 850–855.)
- VAN DER MERWE, J. & DU TOIT, C.G. 2002. Numerical modelling of a wet cooling tower. *R&D Journal*, 18:23–30.
- DU TOIT, C.G. 2002. Friction factors and Nusselt numbers for fully developed flow in annuli. (*in* Heat Transfer 2002 : Proceedings of 12th International Heat Transfer Conference held in Grenoble, France on 18–23 August 2002. Elsevier SAS, vol. 1, p. 201–206.)
- DU TOIT, C.G., GREYVENSTEIN, G.P. & ROUSSEAU, P.G. 2003. A comprehensive reactor model for the integrated network simulation of the PBMR power plant. (*In* ICAPP'03 : Proceedings of the 2003 International Congress on Advances in Nuclear Power Plants held in Córdoba, Spain on 4–7 May 2003. [CD-ROM], Paper 3300.)
- DU TOIT, C.G. 2003. Friction factor and Nusselt number for fully developed laminar flow in a semi-circular duct. (*In* Meyer, J.P., *ed.* HEFAT 2003 Heat Transfer, Fluid Mechanics and Thermodynamics : 2nd International Conference on Heat Transfer, Fluid Mechanics, and Thermodynamics held in Livingstone, Victoria Falls, Zambia on 24–26 June 2003. Centurion : HEFAT, [CD-ROM] Paper DC2.)

- COETZEE, R.V. & DU TOIT, C.G. 2004. Numerical modelling of an air-cooled heat exchanger: Influence of end-effects on results. *R&D Journal*, 20:16–23.
- DU TOIT, C.G. ROUSSEAU, P.G. GREYVENSTEIN, G.P. & LANDMAN, W.A. 2004. A system CFD model of a packed bed high temperature gas-cooled nuclear reactor. (*In* De Vahl Davis, G. & Leonardi, E. *eds.* CHT'04 Advances in Computational Heat Transfer III : Proceedings of 3rd International Symposium on Advances in Computatonal Heat Transfer held on MS Midnatsol, Norway on 19–24 April 2004. New York : Begell House. [CD-ROM], Paper 157)
- DU TOIT, C.G. ROUSSEAU, P.G. GREYVENSTEIN, G.P. & LANDMAN, W.A. 2006. A system CFD model of a packed bed high temperature gas-cooled nuclear reactor. *International Journal of Thermal Sciences*, 45: 70–85.
- ROUSSEAU, P.G. DU TOIT, C.G. & LANDMAN, W.A. 2005. Validation of a transient thermal-fluid systems CFD model of a packed bed high temperature gas-cooled nuclear reactor. *Nuclear Engineering and Design*, 236: 555–564.
- KRUGER, J-H., DU TOIT, C.G. 2006. Integrated systems CFD analysis applied to boiler simulation. (*in* De Vahl Davis, G. & Leonardi, E. *eds.* Proceedings of 13th International Heat Transfer Conference held in Sydney, Australia on 13–18 August 2006. New York : Begell House. [CD-ROM], Paper EQP-30)
- DU TOIT, C.G., ROUSSEAU, P.G., GREYVENSTEIN, G.P. 2006. Systems CFD analysis of complex thermal-fluid systems. (*in* De Vahl Davis, G. & Leonardi, E. *eds.* Proceedings of 13th International Heat Transfer Conference held in Sydney, Australia on 13–18 August 2006. New York : Begell House. [CD-ROM], Paper MTH-08)
- DU TOIT, C.G. 2006. Analysis of the radial variation of the porosity of annular packed beds. (*In* Proceedings of the 3rd International Topical Meeting on High Temperature Reactor Technology (HTR-2006) held in Johannesburg on 1–4 October 2006. Paper H00000079) [CD-ROM]
- DU TOIT, C.G., VAN DER WALT, A.J.K & VAN DER MERWE, J. 2008. Using an effective viscosity to account for the effect of walls on the pressure drop through an annular packed bed. (*In* Proceedings of the 4th International Topical Meeting on High Temperature Reactor Technology (HTR-2008) held in Washington on 28 September – 1 October 2008. Paper 58048)
- DU TOIT, C.G. 2008. Radial variation in porosity in annular packed beds. *Nuclear Engineering and Design*, 238: 3073–3079.
- DU TOIT, C.G., VAN ANTWERPEN, W. & ROUSSEAU, P.G. 2009. Analysis of the porous structure of an annular pebble bed reactor. (*In* ICAPP'09 : Proceedings of the 2009 International Congress on Advances in Nuclear Power Plants held in Shinjuku, Japan on 10–14 May 2009. Paper 9123.)
- VAN ANTWERPEN, W., DU TOIT, C.G., & ROUSSEAU, P.G. 2009. Accounting for porous structure in effective thermal conductivity calculations in a pebble bed reactor. (*In* ICAPP'09 : Proceedings of the 2009 International Congress on Advances in Nuclear Power Plants held in Shinjuku, Japan on 10–14 May 2009. Paper 9124.)
- DU TOIT, C.G. 2010. Finite element solution of fully developed non-isothermal flow in annuli. (*In* Proceedings of the 7th SA Conference on Computational and Applied Mechanics, SACAM10 held in Pretoria, 10–13 January 2010. [CD-ROM] Paper 016.)
- DU TOIT, C.G. 2010. Global Galerkin finite element solution of the fourth-order Euler-Bernoulli beam equation. (*In* Proceedings of the 7th SA Conference on Computational and Applied Mechanics, SACAM10 held in Pretoria, 10–13 January 2010.[CD-ROM] Paper 017.)

- REYNEKE, H.J. & DU TOIT, C.G. 2010. Modelling the superficial velocity distribution inside an annular packed bed. *In* Proceedings of the 7th SA Conference on Computational and Applied Mechanics, SACAM10 held in Pretoria, 10–13 January 2010. [CD-ROM] Paper 032.)
- REYNEKE, H.J. & DU TOIT, C.G. 2010. Fluid flow distribution above an annular bed of randomly packed spheres. (*In* Proceedings of the 7th SA Conference on Computational and Applied Mechanics, SACAM10 held in Pretoria, 10–13 January 2010. [CD-ROM] Paper 033.)
- VAN ANTWERPEN, H.J., ROUSSEAU, P.G. & DU TOIT, C.G. 2010. The extraction of the temperature gradient from measured temperature profiles with uncertainty propagation, as applied to the High Temperature Test Unit. (*In* Proceedings of the 7th SA Conference on Computational and Applied Mechanics, SACAM10 held in Pretoria, 10–13 January 2010. [CD-ROM] Paper 033.)
- VAN ANTWERPEN, W., DU TOIT, C.G. & ROUSSEAU, P.G. 2010. A review of correlations to model the packing structure and effective thermal conductivity in packed beds of mono-sized spherical particles. *Nuclear Engineering and Design*, 240: 1803–1818.
- DU TOIT, C.G. & ROUSSEAU, P.G. 2010. The flow and heat transfer in a packed bed high temperature gas-cooled reactor. (*In* IHTC14 : Proceedings of the 14th International Heat Transfer Conference held in Washington DC, USA on 8 – 13 August 2010. Paper IHTC14-22384.) (Invited keynote lecture.)
- DU TOIT, C.G. & ROUSSEAU, P.G. 2012. Modeling the flow and heat transfer in a packed bed bed high temperature gas-cooled reactor in the context of a systems CFD approach. *ASME Journal of Heat Transfer*, 134: 031015-1 – 031015-12.
- VAN ANTWERPEN, W., ROUSSEAU, P.G. & DU TOIT, C.G. 2012. Multi-sphere unit cell model to calculate the effective thermal conductivity in packed pebble beds of mono-sized spheres. *Nuclear Engineering and Design*, 247: 183–201.
- DU TOIT, C.G., ROUSSEAU, P.G., KGAME, T.L. & PRELLER, A.C.N. 2012. Experimental and numerical modelling of enhanced thermal diffusion in a structured packed bed. (*In*: De Vahl Davis *ed.* CHT'12: Proceedings of 5th International Symposium on Advances in Computational Heat Transfer held in Bath, UK on 1–6 July 2012. Redding : Begell House. [CD-ROM], Paper VV-02)
- BOGAERS, A.E.J., DE VILLIERS, A.M., KOK, S., UBBINK, O., FRANZ, T., REDDY, B.D. & DU TOIT, C.G. 2012. Towards the development of a fully coupled arterial-venous 1d model: suitability of using a 1d finite volume method with a staggered spatial discretization. (*In*: Proceedings of 10th World Congress on Computational Mechanics (WCCM 2012) held in Sao Paulo, Brazil on 8–13 July 2012. [CD-ROM], Paper 19026)
- DU TOIT, C.G. 2012. Analysis of the porous structure of packed beds of spheres using X-ray tomography. (*In* Proceedings of the 8th SA Conference on Computational and Applied Mechanics, SACAM2012 held in Johannesburg, 3–5 September 2012.[CD-ROM] Paper 020.)
- ROUSSEAU, P.G., DU TOIT, C.G., & PITSO, L. 2012. The SUN model for radiation heat transfer in packed pebble bed gas cooled reactors. (*In*: Proceedings of the 6th International Topical Meeting on High Temperature Reactor Technology (HTR-2012) held in Tokyo on 28 October – 1 November 2012. Paper HTR2012-6-020)

- DU TOIT, C.G., ROUSSEAU, P.G., & KGAME, T.L. 2012. Separate effects tests to determine the thermal dispersion in structured pebble beds using the PBMR HPTU test facility. (*In*: Proceedings of the 6th International Topical Meeting on High Temperature Reactor Technology (HTR-2012) held in Tokyo on 28 October – 1 November 2012. Paper HTR2012-6-021)
- ROUSSEAU, P.G., DU TOIT, C.G., VAN ANTWERPEN, W. & VAN ANTWERPEN, H. 2012. Separate effects test to determine the effective thermal conductivity in the PBMR HTTU test facility. (*In*: Proceedings of the 6th International Topical Meeting on High Temperature Reactor Technology (HTR-2012) held in Tokyo on 28 October – 1 November 2012. Paper HTR2012-6-022)
- DU TOIT, C.G. & MERCURIO, G. 2014. Re-evaluation of the separation parameters based on the Berman-Olander long-bowl gas-centrifuge solution. (*In*: Proceedings of the 9th SA Conference on Computational and Applied Mechanics, SACAM2014 held in Somerset West, 14–16 January 2014.[CD-ROM] Paper 009.)
- VAN DER MERWE, W.J.S., DU TOIT, C.G. & KRUGER, J-H. 2014. Local rise of total pressure in viscous flow through cylindrical packed beds with spherical particles. (*In*: Proceedings of the 9th SA Conference on Computational and Applied Mechanics, SACAM2014 held in Somerset West, 14–16 January 2014.[CD-ROM] Paper 042.)
- DU TOIT, C.G., ROUSSEAU, P.G. & KGAME, T.L. 2014. Separate effects tests to determine the thermal dispersion in structured pebble beds using the PBMR HPTU test facility. *Nuclear Engineering and Design*, 271: 437–443.
- ROUSSEAU, P.G., DU TOIT, C.G., VAN ANTWERPEN, W. & VAN ANTWERPEN, H. 2014. Separate effects test to determine the effective thermal conductivity in the PBMR HTTU test facility. *Nuclear Engineering and Design*, 271: 444–458.
- DU TOIT, C.G., ROUSSEAU, P.G., JUN, J.S.& NOH, J.M. 2014. 1D and 3D numerical simulation of the reactor cavity cooling system of a very high temperature reactor. (*In* IHTC15 : Proceedings of the 15th International Heat Transfer Conference held in Kyoto, Japan on 10 – 15 August 2014. Paper IHTC15-8982.)
- ROUSSEAU, P.G., DU TOIT, C.G., & VAN DER WALT, S. 2014. Implementation of the SUN model for radiation heat transfer in packed pebble bed gas cooled reactors. (*In* IHTC15 : Proceedings of the 15th International Heat Transfer Conference held in Kyoto, Japan on 10 – 15 August 2014. Paper IHTC15-9143.)
- DU TOIT, C.G.& ROUSSEAU, P.G. 2014. Separate effects tests to determine the pressure drop over packed beds in the PBMR HPTU test facility. (*In*: Proceedings of the 7th International Topical Meeting on High Temperature Reactor Technology (HTR-2014) held in Weihai, China on 27 – 31 October 2014. Paper HTR2014-61107)
- DU TOIT, C.G. & MERCURIO, G. 2015. Evaluation of the Berman-Olander long-bowl gas centrifuge solution. *Separation Science and Technology*, 50:1239–1248.
- ROUSSEAU, P.G., DU TOIT, C.G. & DE BEER, M. 2015. A methodology for the characterization of the effective thermal conductivity in the near-wall region of a packed pebble bed. (*In* ICAPP 2015 : Proceedings of the 2015 International Congress on Advances in Nuclear Power Plants held in Nice, France on 3–6 May 2015. Paper 15167)
- DU TOIT, C.G., ROUSSEAU, P.G., SAMBURENI, P. & LE GRANGE, L.A. 2015. A system CFD model of the heat transfer in a prismatic block of a

VHTR.(*In* ICAPP 2015 : Proceedings of the 2015 International Congress on Advances in Nuclear Power Plants held in Nice, France on 3–6 May 2015. Paper 15027)

- ROUSSEAU, P.G., DU TOIT, C.G., JUN, J.S. & NOH, J.M. 2015. Code-to-code comparison for analysing the steady-state heat transfer and natural circulation in an air-cooled RCCS using GAMMA+ and Flownex. *Nuclear Engineering and Design*, 291:71–89.
- KRUGER, J.H., DU TOIT, C.G. & VAN DER MERWE, W.J.S. 2015. Numerical validation of the Eisfeld and Schnitzlein pressure drop correlation for small aspect ration packed beds. (*In* Proceedings of the 11th International Conference on CFD in the Minerals and Process Industries held in Melbourne, Australia on 7–9 December 2015. Paper 018KRU)
- ROOS, T.H., HARMS, T.M. & DU TOIT, C.G. 2016. Conservation of scattered energy and asymmetry factor in the new Rotationally Symmetric Spherical Discretisation scheme. *International Journal of Heat and Mass Transfer*, *International Journal of Heat and Mass Transfer*, 101:205–225.
- KHOZA, S.N., DU TOIT, C.G. & ROUSSEAU, P.G. 2016. Formulation of a unit cell for a thermal-hydraulic systems model for a prismatic block of a High Temperature Gas-cooled Reactor. (*In*: Proceedings of the 10th SA Conference on Computational and Applied Mechanics, SACAM2016 held in Potchefstroom, 3–5 October 2016.[USB-ROM] Paper 1028.)
- NIEMAND, P.F., DU TOIT, C.G., TAK, N.I. & KIM, M.H. 2016. Simulation of natural convective flow in an experimental reactor cavity cooling system facility. (*In*: Proceedings of the 10th SA Conference on Computational and Applied Mechanics, SACAM2016 held in Potchefstroom, 3–5 October 2016.[USB-ROM] Paper 1012.)
- DE BEER, M., DU TOIT, C.G. & DREYER, H. 2016. Experimental investigation of the effective thermal conductivity in the near-wall region of a packed pebble bed. (*In*: Proceedings of the 10th SA Conference on Computational and Applied Mechanics, SACAM2016 held in Potchefstroom, 3–5 October 2016.[USB-ROM] Paper 1079.)
- DU TOIT, C.G., ROUSSEAU, P.G., JUN, J.S. & KIM, M.H. 2016. A system CFD simulation of the effect of a pressure pulse on the performance of a reactor cavity cooling system of a very high temperature reactor. (*In*: Proceedings of the 10th SA Conference on Computational and Applied Mechanics, SACAM2016 held in Potchefstroom, 3–5 October 2016.[USB-ROM] Paper 1081.)
- POTGIETER, M.C., DU TOIT, C.G. & KRUGER, J-H.. 2016. The evaluation of 3D CFD approaches to model the flow and heat transfer inside an unstructured bed of uniform spheres. (*In*: Proceedings of the 10th SA Conference on Computational and Applied Mechanics, SACAM2016 held in Potchefstroom, 3–5 October 2016.[USB-ROM] Paper 1085.)
- KHOZA, S.N., DU TOIT, C.G., ROUSSEAU, P.G. & LEE, S.N. 2016. Comparison between Flownex and CORONA thermal-hydraulic models of a single HTR prismatic fuel assembly. (*In*: Proceedings of the 8th International Topical Meeting on High Temperature Reactor Technology, (HTR-2016) held in Las Vegas, USA on 6 – 10 November 2016. [USB-ROM] (Paper 18544) p 165–171.)
- POTGIETER, M.C., DU TOIT, C.G. & KRUGER, J-H. 2016. A fully integrated 3D CFD model of the flow and heat transfer in a packed bed reactor. (*In*: Proceedings of the 8th International Topical Meeting on High Temperature Reactor Technology (HTR-2016) held in Las Vegas, USA on 6 – 10 November 2016. [USB-ROM])Paper 18578) p 67–72.)

- DU TOIT, C.G., ROUSSEAU, P.G., JUN, J.S. & KIM, M.H. 2016. Numerical simulation of break flows occuring in the reactor cavity cooling system of a very high temperature reactor using a system CFD approach. (*In*: Proceedings of the 8th International Topical Meeting on High Temperature Reactor Technology (HTR-2016) held in Las Vegas, USA on 6 – 10 November 2016. [USB-ROM] (Paper 18437) p 888–895.)
- DE BEER, M., DU TOIT, C.G. & ROUSSEAU, P.G. 2017. A methodology to investigate the contribution of conduction and radiation heat transfer to the effective thermal conductivity of packed graphite pebble beds, including the wall effect. *Nuclear Engineering and Design*, 314:67–81.
- DU TOIT, C.G., TAK, N.I., NIEMAND, P.F. & KIM, M.H. 2017. Test problems for the verification and validation of the radiation, conduction and convection capabilities of system codes. (*In*: Jaluria, Y. & Manca, O. *eds.* CHT'17: Proceedings of 7th International Symposium on Advances in Computational Heat Transfer held in Napels, Italy on 2 May – 1 June 2017. Redding : Begell House. [USB], Paper CHT-17-051)
- DE BEER, M., ROUSSEAU, P.G. & DU TOIT, C.G. 2018. A review of methods to predict the effective thermal conductivity of packed pebble beds, with emphasis on the near-wall region. *Nuclear Engineering and Design*, 331:248–262.
- DE BEER, M., DU TOIT, C.G., & ROUSSEAU, P.G. 2018. Experimental study of the effective thermal conductivity in the near-wall region of a packed pebble bed. *Nuclear Engineering and Design*, 339:253–268.
- DU TOIT, C.G., & VAN ANTWERPEN, HJ. 2018. Modelling of convection heat transfer in ducts in 1D systems codes. (*In* IHTC16 : Proceedings of the 16th International Heat Transfer Conference held in Beijing, China on 10 – 15 August 2015. Paper IHTC16-22139.)
- DU TOIT, C.G., SHIN, D.H. & PARK, G.C. 2018. Modelling of convection heat transfer in the SNU Riser Heat transfer Experimental Facility. (*In*: Proceedings of the 11th SA Conference on Computational and Applied Mechanics, SACAM2018 held in Vanderbijlpark, 17–19 Septemberber 2018. [USB-ROM] Paper 2125.)
- NIEMAND, P.F. & DU TOIT, C.G. 2018. Investigation of 1D system CFD and 3D CFD numerical methodology applied to an experimental facility. (*In*: Proceedings of the 11th SA Conference on Computational and Applied Mechanics, SACAM2018 held in Vanderbijlpark, 17–19 Septemberber 2018. [USB-ROM] Paper 2129.)
- NEL, G.J. & DU TOIT, C.G. 2018. A System CFD Model of a Single-Channel Fuel Module in a Prismatic Block VHTR. (*In*: Proceedings of the 11th SA Conference on Computational and Applied Mechanics, SACAM2018 held in Vanderbijlpark, 17–19 Septemberber 2018. [USB-ROM] Paper 2130.)
- VERMAAK, H.J. & DU TOIT, C.G. 2018. CFD analysis of thermal dispersion in a structured packed bed. (*In*: Proceedings of the 11th SA Conference on Computational and Applied Mechanics, SACAM2018 held in Vanderbijlpark, 17–19 Septemberber 2018. [USB-ROM] Paper 2131.)
- VAN DER WALT, J.P. KRUGER, J-H. & DU TOIT, C.G. 2018. Simulation of suction recirculation in double suction centrifugal pumps. (*In*: Proceedings of the 11th SA Conference on Computational and Applied Mechanics, SACAM2018 held in Vanderbijlpark, 17–19 Septemberber 2018. [USB-ROM] Paper 2171.)
- DU TOIT, C.G., & VAN ANTWERPEN, H.J. 2018. Effect of reactor vessel cooling insulation and reflector heat pipes on the temperatures of a pebble-bed

reator using a system CFD apporach. (*In*: Proceedings of the 9th International Topical Meeting on High Temperature Reactor Technology (HTR-2018) held in Warsaw, Poland on 8 – 10 October 2018. [USB-ROM] (Paper 0033)

- NIEMAND, P.F. & DU TOIT, C.G. 2018. Code-to-code comparison of natural convective flow in an experimental facility. (*In*: Proceedings of the 9th International Topical Meeting on High Temperature Reactor Technology (HTR-2018) held in Warsaw, Poland on 8 – 10 October 2018. [USB-ROM] (Paper 0109)
- DU TOIT, C.G., TAK, N.I., NIEMAND, P.F. & KIM, M.H. 2019. Benchmarks for the validation of the heat transfer capabilities of one-dimensional system codes. *Computational Thermal Sciences*, 11:1–14.
- DU TOIT, C.G. 2019. Analysing the porous structure of packed beds of spheres using a semi-analytical approach. *Powder Technology*, 342:475–485.
- LATIFI, MS & DU TOIT, CG. 2019. A Numerical Study to Investigate the Effect of Inlet Reynolds Number on the ThermalFluid Phenomena in the Supercritical Carbon Dioxide-Cooled Pebble Bed Reactor. *Arabian Journal for Science and Engineering*, 44:981–991.

19. Publications in Conference Proceedings:

- DU TOIT, C.G. 1982. Wave induced velocities close to a rippled bed. (*In* Proceedings of the 18th International Conference on Coastal Engineering held in Cape Town on 14–19 November 1982. Cape Town)
- DU TOIT, C.G. 1988. Finite Element Analysis of the Flow Field in a Vortex Generator. (*In* Proceedings of the 8th Symposium on Finite Element Methods in South Africa held in Pretoria on 26–29 January 1988. Pretoria : CSIR.)
- DU TOIT, C.G. 1988. Inverse Mapping in Finite Elements as Applied to Particle Tracking. (*In* Proceedings of the 1st National Symposium on Computational Fluid Dynamics held in Pretoria on 21–23 November 1988. Pretoria : CSIR.)
- DU TOIT, C.G. 1989. Inverse Mapping in Finite Elements as Applied to the Calculation of Streamlines. (*In* Proceedings of the 9th Symposium on Finite Element Methods in South Africa held in Stellenbosch on 8–10 February 1989. Stellenbosch : University of Stellenbosch.)
- DU TOIT, C.G. 1989. Use of PHOENICS for prediction of dump diffuser flows. (*In* Proceedings of the 3rd International PHOENICS User Conference held in Dubrovnik on 28 August – 1 September 1989. London : CHAM.)
- DU TOIT, C.G. 1989. Computer simulation of a vortex generator. (*In* Proceedings of the 3rd South African Weapon Systems Symposium held in Pretoria on 24–26 October 1989. Pretoria.)
- DU TOIT, C.G. 1990. The Numerical Prediction of Dump Diffuser Flows. (*In* Proceedings of the 2nd South African Aeronautical Engineering Conference held in Pretoria on 14–16 February 1990. Pretoria.)
- DU TOIT, C.G., KOTZE, J.C.B. & DU PLESSIS, J.P. 1990. The Modelling of the Air Flow through a Grill and Radiator Core. (*In* Proceedings of the 10th Symposium on Finite Element Methods in South Africa held in Pretoria on 15–17 August 1990. Pretoria : University of Pretoria.)
- VAN ZIJL, G.P.A.G. & DU TOIT, C.G. 1990. Segregated Finite Element Solution of the Incompressible Navier–Stokes Equations with Equal–Order Velocity–Pressure Formulation. (*In* Proceedings of the 10th Symposium on Finite Element Methods in South Africa held in Pretoria on 15–17 August 1990. Pretoria : University of Pretoria)

- VAN ZIJL, G.P.A.G. & DU TOIT, C.G. 1991. A Simpler Finite Element Solution of the Incompressible Navier–Stokes Equations. (*In* Proceedings of the 2nd National Symposium on Computational Fluid Dynamics held in Vereeniging on 24–27 June 1991. Potchefstroom : Potchefstroon University for CHE.)
- DU TOIT, C.G. & VAN ZIJL, G.P.A.G. 1991. Recovering the Pressure after a Penalty Finite Element Solution of the Incompressible Navier–Stokes Equations. (*In* Proceedings of the 2nd National Symposium on Computational Fluid Dynamics held in Vereeniging on 24–27 June 1991. Potchefstroom : Potchefstroom University for CHE.)
- DU TOIT, C.G. 1991. Tracking Particles through a Flow Field with Obstructions. (*In* Proceedings of the 2nd National Symposium on Computational Fluid Dynamics held in Vereeniging on 24–27 June 1991. Potchefstroom : Potchefstroom University for CHE.)
- DU TOIT, C.G. & KOTZE, J.C.B. 1991. Air Flow through a Louvre and Radiator Core System. (*In* Proceedings of the 2nd National Symposium on Computational Fluid Dynamics held in Vereeniging 0n 24–27 June 1991. Potchefstroom : Potchefstroom University for CHE.)
- DU TOIT, C.G. & KRÖGER, D.G. 1991. Numerical Modelling of Recirculation in Mechanical–Draught Heat Exchangers. (*In* Proceedings of the 1st ICHMT International Numerical Heat Transfer Conference and Software Show held in Guildford, UK on 22–26 July 1991. London.)
- DU TOIT, C.G., VON BACKSTRÖM, T.W. & POOL, C.H. 1991. The Numerical Tracking of the Canard Tip Vortices of a Missile Model. (*In* Proceedings of the 3rd South African Aeronautical Engineering Conference held in Pretoria on 14–16 August 1991. Pretoria.)
- VAN ZIJL, G.P.A.G. & DU TOIT, C.G. 1992. A Simplest Finite Element Solution of the Incompressible Navier–Stokes Equations. (*In* Proceedings of the 11th Symposium on Finite Element Methods in South Africa held in Cape Town on 15-17 January 1992. Cape Town.)
- DU TOIT, C.G., MARQUARDT, A.E. & TOERIEN, L.M. 1992. Finding Common Element Faces. (*In* Proceedings of the 11th Symposium on Finite Element Methods in South Africa held in Cape Town on 15–17 January 1992. Cape Town : University of Cape Town.)
- DU TOIT, C.G. 1992. Numerical Simulation of thr Forces on a Missile. (*In* Proceedings of the Fourth International Symposium on Explosives Technology and Ballistics held in Pretoria on 14–16 October 1992. Pretoria : NIXT.)
- DU TOIT, C.G. 1993. Numerical Calibration of a Large Scale Industrial Venturi Meter. (*In* Third National Symposium on Computational Fluid Dynamics held in Stellenbosch on 30 June – 2 July 1993. Stellenbosch : Univeristy of Stellenbosch.)
- VAN TONDER, A. & DU TOIT, C.G. 1993. A More Effective Method to Solve Ocean Wave Propagation Problems in Coastal Regions. (*In* Third National Symposium on Computational Fluid Dynamics held in Stellenbosch on 30 June – 2 July 1993. Stellenbosch : University of Stellenbosch.)
- DU TOIT, C.G. 1995. A SIMPLEST Iterative Solution of the Incompressible Navier-Stokes Equations. (*In* Proceedings of the 13th Symposium on Finite Element Methods in South Africa held in Stellenbosch on 17-20 January 1995. Stellenbosch : University of Stellenbosch.)
- DU TOIT, C.G. 1995. Modelling of the Mixing in a Gas-Stirred Steel Ladle. (*In* Proceedings of the 13th Symposium on Finite Element Methods in South

Africa held in Stellenbosch on 17–20 January 1995. Stellenbosch : University of Stellenbosch).

- ENGELBRECHT, L. DU TOIT, C.G. & MOCKE, G.P. 1995. The Application of 2-D Geophysical Flow Modelling to the Coastal Environment. (*In* Proceedings of the 13th Symposium on Finite Element Methods in South Africa held in Stellenbosch on 17-20 January 1995. Stellenbosch :University of Stellenbosch).
- DUVENHAGE, K. DU TOIT, C.G. & KRÖGER, D.G. 1996. Methods to Combat the Influence of Cross Wind on Fan Performance in Forced Draught Air-Cooled Heat Exchangers. (*In* Proceedings of the 1st South African Conference on Applied Mechanics held in Midrand on 1–5 July 1996. Pretoria : University of Pretoria. vol. 3, p 13–23.)
- DU TOIT, C.G. 1996. Finite Element Solution of the Navier-Stokes Equations Based on the SIMPLEST Algorithm. (*In* Proceedings of the 1st South African Conference on Applied Mechanics held in Midrand on 1–5 July 1996. Pretoria : University of Pretoria. vol. 3, p 96–105.)
- VAN DER WALT, J.J. & DU TOIT, C.G. 1996. Numerical Modelling of Two-Phase Flow in a Sedimentation Tank. (*In* Proceedings of the 1st South African Conference on Applied Mechanics held in Midrand on 1-5 July 1996. Pretoria : University of Pretoria. vol. 4, p 51–61.)
- GOLDSCHAGG, H., VOGT, F., DU TOIT, C.G., THIART, G.D. & KRÖGER, D.G. 1997. Air-cooled steam condenser performance in the presence of cross-winds. (*In* Proceedings of International Cooling Tower Technology Conference held in St Petersburg, Florida on 11 - 14 August 1997. EPRI TR-108483, p. 1-67—1-77.)
- DU TOIT, C.G. 1998. The SIMPLER SUPG finite element algorithm : Some lessons and questions. (*In* Proceedings of the 2nd South African Conference on Applied Mechanics held in Cape Town on 12-15 January 1998. Cape Town : University of Cape Town. vol. 1, p. 309–320.)
- KRUGER, J-K. & DU TOIT, C.G. 2000. Euler / Lagrangian modelling of an electrostatic precipitator. (*In* Proceedings of the 3rd South African Conference on Applied Mechanics held in Durban on 11-13 January 2000. Durban : University of Natal.)
- NEETHLING, R.S. & DU TOIT, C.G. 2000. A numerical algorithm for the simulation of systems of rigid bodies. (*In* Proceedings of the 3rd South African Conference on Applied Mechanics held in Durban on 11-13 January 2000. Durban : University of Natal.)
- DU TOIT, C.G., LE GRANGE, L.A., COETZEE, R.V. & VAN DER MERWE, J. 2000. The determination of the Nusselt numbers and friction factors for laminar flow in closed conduits. (*In* Proceedings of the 3rd South African Conference on Applied Mechanics held in Durban on 11-13 January 2000. Durban : University Natal.)
- DU TOIT, C.G. & LEMMER, T.N. 2000. The application of computational fluid dynamics in the design and operation of rectangular sedimentation tanks in potable water treatment. (*In* Proceedings of the WISA Biennial Conference held in Sun City on 28 May – 1 June 2000. Midrand : WISA.)
- DU TOIT, C.G., GREYVENSTEIN, G.P., EMSLIE, F.N. & ROUSSEAU, P.G. 2000. Acceptance procedure for thermo-hydraulic simulators : an example. (*In* Proceedings of IFAC Conference on Technology Transfer in Developing Countries held in Pretoria on 5–7 July 2000. Pretoria.)

- ROUSSEAU, P.G., GREYVENSTEIN, G.P., BOTHA, B.W. & DU TOIT, C.G. 2000. Sensitivity analysis of the PBMR gas cooled nuclear reactor cycle with the aid of a simplified simulation model. (*In* Proceedings of IFAC Conference on Technology Transfer in Developing Countries held in Pretoria on 5–7 July 2000. Pretoria.)
- DU TOIT, C.G. 2002. The numerical determination of the variation in the porosity of the pebble-bed core. (*In* HTR 2002 : Proceedings of 1st International Topical Meeting on High Temperature Reactor Technology held in Petten, Netherlands on 22–24 April 2002. Petten.)
- DU TOIT, C.G., GREYVENSTEIN, G.P. & ROUSSEAU, P.G. 2003. Analysis of the pebble-bed modular reactor thermal-fluid cycle using a network code. (*In* Müller, A. & Löffler, B., *eds.* Proceedings of the 6th World Congress on Fluid Dynamics held in Nürnberg, Germany on 14 – 15 May 2003. Freiburg : Continum AG, Paper 19) [CD-ROM.]
- DU TOIT, C.G. 2004. Calculation of boundary fluxes in the finite element method. (*In* Iwankiewicz, R., Du Toit, C.G. & Craig, K., *eds.* Proceedings of the 4th South African Conference on Applied Mechanics held in Johannesburg on 19-21 January 2004. Pretoria : University of Pretoria, Paper 79.) [CD-ROM.]
- KRUGER, J-H. & DU TOIT, C.G. 2004. Object-oriented software development applied to adaptive resolution control in two-fluid models. (*In* Iwankiewicz, R., Du Toit, C.G. & Craig, K., *eds.* Proceedings of the 4th South African Conference on Applied Mechanics held in Johannesburg on 19-21 January 2004. Pretoria : University of Pretoria, Paper 58.) [CD-ROM.]
- GORDON, G. & DU TOIT, C.G. 2004. Comparison between the experimental and numerical determination of the radial variation in the porosity in cylindrical packed beds. (*In* Iwankiewicz, R., Du Toit, C.G. & Craig, K., *eds.* Proceedings of the 4th South African Conference on Applied Mechanics held in Johannesburg on 19-21 January 2004. Pretoria : University of Pretoria, Paper 71.) [CD-ROM.]
- DU TOIT, C.G., ROUSSEAU, P.G., LANDMAN, W.A. & GREYVENSTEIN, G.P. 2004. An integrated system CFD simulation of a pebble bed reactor. (*In* Iwankiewicz, R., Du Toit, C.G. & Craig, K., *eds.* Proceedings of the 4th South African Conference on Applied Mechanics held in Johannesburg on 19-21 January 2004. Pretoria : University of Pretoria, Paper 57.) [CD-ROM.]
- COETZEE, R.V., UBBINK, O. & DU TOIT, C.G. 2004. Volume weighted interpolation for unstructured meshes in the finite volume method. (*In* Iwankiewicz, R., Du Toit, C.G. & Craig, K., *eds.* Proceedings of the 4th South African Conference on Applied Mechanics held in Johannesburg on 19-21 January 2004. Pretoria : Univeristy of Pretoria, Paper 53.) [CD-ROM.]
- NEETHLING, R.S. & DU TOIT, C.G. 2004. A numerical algorithm for the simulation of systems of rigid bodies. (*In* Iwankiewicz, R., Du Toit, C.G. & Craig, K., *eds.* Proceedings of the 4th South African Conference on Applied Mechanics held in Johannesburg on 19-21 January 2004. Pretoria : University of Pretoria, Paper 70.) [CD-ROM.]
- ROUSSEAU, P.G., DU TOIT, C.G. & LANDMAN, W.A. 2004. Validation of a transient thermal-fluid systems CFD model for a packed bed high temperature gas-cooled nuclear reactor. (*In* Proceedings of the 2nd International Topical Meeting on High Temperature Reactor Technology (HTR-2004) held in Beijing on 22-24 September 2004. Beijing.)
- DU TOIT, C.G. 2005. Simulation of fully developed flow in a packed bed using the finite element approach. (*In* Book of Abstracts of the 13th Conference on Finite Elements for Flow Problems held in Swansea on 4-6 April 2005. p. 159.)

- DU TOIT, C.G. 2006. The continuous Galerkin finite element method as applied to the 1D beam equation : A systems approach. (*In* Proceedings of the 5th SA Conference on Computational and Applied Mechanics held in Cape Town on 16 – 18 January 2006.)
- VAN DER WALT, A.J.K. & DU TOIT, C.G. 2006. Pressure drop through annular packed beds. (*In* Proceedings of the 5th SA Conference on Computational and Applied Mechanics held in Cape Town on 16 – 18 January 2006.)
- BOSMAN, J.J., JONKER, A.S. & DU TOIT, C.G. 2006. Investigating aerodynamic efficiency of a glider with CFD laminar / turbulent transition models. (*In* Book of Abstracts of the 5th SA Conference on Computational and Applied Mechanics held in Cape Town on 16 – 18 January 2006.)
- KRUGER, J-H. & DU TOIT, C.G. 2006. Arbitrees – Adaptive refinement on unstructured grids. (*In* Proceedings of the 5th SA Conference on Computational and Applied Mechanics held in Cape Town on 16 – 18 January 2006.)
- KRUGER, J–H. & DU TOIT, C.G. 2006. Integrated systems CFD analysis : A practical overview. (*In* Proceedings of the 5th SA Conference on Computational and Applied Mechanics held in Cape Town on 16 – 18 January 2006.)
- KRUGER, J-H., DU TOIT, C.G. 2006. The simulation of a thermal-fluid system using an integrated systems CFD approach. (*In* Proceedings of the 5th International Conference on Computational Fluid Dynamics in the Process Industries held in Melbourne on 13–15 December 2006.)
- DU TOIT, C.G. 2007. The Global Galerkin Finite Element Method : An alternative approach for teaching and understanding the finite element method. (*In* Book of Abstracts of the 9th US National Conference on Computational Mechanics held in San Fransico on 22 – 26 July 2007.)
- DU TOIT, C.G. 2007. The fourth-order Euler-Bernoulli beam equation - Global Galerkin finite element and analytical solutions. (*In* Book of Abstracts of the 4th Conference of Applied Mathematics and Computing held in Plovdic on 12 – 18 August 2007.)
- DU TOIT, C.G. 2008. The fourth-order Euler-Bernoulli beam equation - The finite element, analytical and matrix stiffness solutions. (*In* Proceedings of the 6th SA Conference on Computational and Applied Mechanics held in Cape Town on 26 – 28 March 2008.)
- DU TOIT, C.G., KRUGER, J-K, & LE GRANGE, L.A. 2009. Integrated systems analysis of complex thermal-fluid systems. (*In* Book of Abstracts of 1st African Conference on Computational Mechanics held in Sun City on 7 – 11 January 2009.)
- DU TOIT, C.G., & JONKER, A.S. 2009. Anaylysis of a glider wing. (*In* Book of Abstracts of the 1st African Conference on Computational Mechanics held in Sun City on 7 – 11 January 2009.)
- DU TOIT, C.G. 2010. A simple tutorial on finite differences, volumes and elements at the hand of an example. (*In* Proceedings of the 7th SA Conference on Computational and Applied Mechanics, SACAM10 held in Pretoria, 10–13 January 2010.)
- VAN ANTWERPEN, W., ROUSSEAU, P.G. & DU TOIT, C.G. 2010. Multi-sphere unit cell model to calculate the effective thermal conductivity in pebble bed reactors. (*In* Proceedings of the European Nuclear Conference ENC 2010 held in Barcelona, Spain, 30 May – 2 June 2010.)
- SCHEEPERS, G., VISSER, J.A. & DU TOIT, C.G. 2011. Development of an automated decompositioning methodology for thermal-fluid network generation.

(*In* Book of Abstracts of the 2nd African Conference on Computational Mechanics held in Cape Town on 5 – 8 January 2011.)

- DU TOIT, C.G. & MERCURIO, G. 2012. The Berman-Olanderlong-bowl solution revisited. (*In* Proceedings of the 12th International Workshop on Separation Phenomena in Liquids and Gases held in Paris, France, 4–8 June 2012.)
- KRIEL, A.J., ROUSSEAU, P.G., DU TOIT, C.G. 2013. Pressure formulation and numerical algorithms for transient flow in pipenetworks, (*In* Book of Abstracts of the 3rd African Conference on Computational Mechanics held in Livingstone, Zambia on 30 July - August 2, 2013.)
- DU TOIT, C.G. 2013. Global Galerkin and collocated finite element solutions of the Berman-Olander long-bowl gas-centrifuge equation. (*In* Book of Abstracts of the 3rd African Conference on Computational Mechanics held in Livingstone, Zambia on 30 July - August 2, 2013.)
- FICK, L.H., ROUSSEAU, P.G., DU TOIT, C.G. 2013. Evaluation of a rate form of the equation of state for use the in simulation of thermal-hydraulic systems. (*In* Book of Abstracts of the 3rd African Conference on Computational Mechanics held in Livingstone, Zambia on 30 July - August 2, 2013.)
- VAN DER MERWE, W.J.S., DU TOIT, C.G., THERON, W.J.G., KRUGER, J-H. 2013. Numerical analysis of the flow distribution within packed columns using an explicit approach. (*In* Book of Abstracts of the 3rd African Conference on Computational Mechanics held in Livingstone, Zambia on 30 July - August 2, 2013.)
- VAN DER MERWE, W.J.S., DU TOIT, C.G., KRUGER, J-H. 2013. Analysis of flow through cylindrical packed beds with small cylinder diameter to particle diameter ratios. (*In* Book of Abstracts of the Energy Post-Graduate Conference 2013 held in Cape Town on 11 - 14 August 2013.)
- FICK, L.H., ROUSSEAU, P.G., DU TOIT, C.G. 2013. Evaluation of a rate form of the equation of state for use in transient homogeneous two-phase flow simulation models. (*In* Book of Abstracts of the Energy Post-Graduate Conference 2013 held in Cape Town on 11 - 14 August 2013.)
- DU TOIT, C.G., MERCURIO, G. 2015. Evaluation of the separation parameters for a long-bowl gas centrifuge. (*In* Proceedings of the 13th Workshop on Separation Phenomena in Liquids and Gases held in San Carlos de Bariloche, Agentina on 7–11 June 2015.)
- DU TOIT, C.G., MERCURIO, G. 2017. Evaluation of the separation parameters for a long-bowl gas centrifuge using cut as the basis. (*In* Proceedings of the 14th Workshop on Separation Phenomena in Liquids and Gases held in Stresa, Italy on 4–9 June 2017.)

20. Unpublished presentations, Invited Lectures, etc.:

- DU TOIT, C.G. 1980. Wave induced velocities close to the seabed. (Presentation given at EUROMECH 114 held in Gdansk in Sept 1980.) Gdansk. (Unpublished.)
- DU TOIT, C.G. 1987. The numerical solution of the Navier–Stokes equations using finite elements. (Colloquim lecture given at Rand Afrikaans University on 21 October 1987.) Johannesburg. (Unpublished.)
- DU TOIT, C.G. 1988. Finite element solution of the Navier-Stokes equations for steady incompressible flow. (Colloquim lecture given at University of Stellenbosch on 17 June 1988.) Stellenbosch. (Unpublished.)

- DU TOIT, C.G. 1990. Structural and Fluid Dynamic Analysis of Vehicles. (Presentation given at Symposium on Large Scale Computing in the Automotive and Related Industries held in Pretoria on 11 September 1990.) Pretoria. (Unpublished.)
- DU TOIT, C.G. 1990. Numerical simulation of flow problems. (Colloquim lecture given at University of Stellenbosch on 24 October 1990.) Stellenbosch. (Unpublished.)
- VAN NIEKERK, W.M.K., DU TOIT, C.G. & SCHEFFLER, T.B. 1995. Performance modelling of a parallel tube polymer absorber. (Poster presentation given at Solar World Congress held in Harare, Zimbabwe on 11–14 September 1995.) Harare. (Unpublished.)
- DU TOIT, C.G. 1997. Finite element solution of the Navier-Stokes equations for incompressible flow using a segregated algorithm. (Presentation given at Symposium on Advances in Computational Mechanics held in Austin, Texas on 13–15 January 1997.) Austin. (Unpublished.)
- DU TOIT, C.G. 1997. Some reflections on a segregated algorithm for the solution of the incompressible Navier-Stokes equations. (Colloquim lecture given at University of Tennessee, Knoxville on 19 September 1997.) Knoxville. (Unpublished.)
- DU TOIT, C.G. 1998. A segregated finite element approach to the solution of the Navier-Stokes equations for incompressible flow. (Keynote presented at Fourth World Congress on Computational Mechanics held in Buenos Aires in June 1998.) Buenos Aires. (Unpublished.)
- DU TOIT, C.G. 2000. The calculation of friction factors and Nusselt numbers for laminar flow in ducts using a finite element approach. (Presentation given at the 11th Conference on Finite Elements in Flow Problems FEF2000 in Austin, Texas on 30 April – 4 May 2000.) Austin. (Unpublished.)
- DU TOIT, C.G. 2000. Powerstation for the new millenium. (Presentation at Symposium and Annual Meeting of the South African Academy for Science and Art held in Bloemfontein on 22-23 June 2000.) Bloemfontein. (Unpublished.)
- DU TOIT, C.G. & F.N. EMSLIE 2001. Network model of the JAERI HTTR. (Presentation given at IAEA 3rd Research Coordination Meeting of CRP-5 held at JAERI, Oaria, Japan on 12–16 March 2001.) Oaria, Japan. (Unpublished.)
- DU TOIT, C.G. 2001. Pebble-bed nuclear powerstation. (Poster presentation given at PUK-FORUM Conference : Technology, values and the university of the 21st century held at Potchefstroom on 4–5 September 2001.) Potchefstroom. (Unpublished, in Afrikaans.)
- DU TOIT, C.G. 2001. Computational fluid mechanics. (Poster presentation given at PUK-FORUM Conference : Technology, values and the university of the 21st century held in Potchefstroom on 4–5 September 2001.) (Unpublished, in Afrikaans.)
- DU TOIT, C.G. 2012. Thermal-flow Phenomena Research. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Jeju, Korea on 5–6 November 2012.) Jeju, Korea. (Unpublished.)
- DU TOIT, C.G., ROUSSEAU, P.G. & KGAME, T.L. 2013. Separate Effects Tests to Determine the Thermal Dispersion in Structured Pebble Beds in the PBMR HPTU Test Facility. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Langebaan, Cape Town on 22–24 April 2013.) Cape Town, South Africa. (Unpublished.)

- DU TOIT, C.G. 2013. 3D CFD Simulation of the RCCS. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Langebaan, Cape Town on 22–24 April 2013.) Cape Town, South Africa. (Unpublished.)
- DU TOIT, C.G., VAN DER MERWE, W.J.S. & KRUGER, J.H. 2013. Evaluation of the lower limit of the KTA friction factor correlation using a explicit CFD approach. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Seoul, Korea on 2–4 September 2013.) Seoul, Korea. (Unpublished.)
- DU TOIT, C.G. 2013. Extended 3D-CFD Simulation of the RCCS. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Seoul, Korea on 2–4 September 2013.) Seoul, Korea. (Unpublished.)
- DU TOIT, C.G. 2014. Heat Transfer for RCCS. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Langebaan, South Africa on 28–30 April 2014.) Langebaan, South Africa. (Unpublished.)
- DU TOIT, C.G., Rousseau, P.G., Jun, J.S. & Noh, J.M. 2014. 1D and 3D Numerical Simulation of The Reactor Cavity Cooling System of a Very High Temperature Reactor. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Langebaan, South Africa on 28–30 April 2014.) Langebaan, South Africa. (Unpublished.)
- DU TOIT, C.G. & ROUSSEAU, P.G. 2014. Separate Effects Tests to Determine the Pressure Drop over Packed Beds in the PBMR HPTU Test Facility. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Gyeongju, Korea on 3–5 November 2014.) Gyeongju, Korea. (Unpublished.)
- DU TOIT, C.G., VAN ANTWERPEN, H.J. & ROUSSEAU, P.G. 2014. The Extraction of the Temperature Gradient from Measured Temperature Profiles with Uncertainty Propagation, as applied to the High Temperature Test Unit. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Gyeongju, Korea on 3–5 November 2014.) Gyeongju, Korea. (Unpublished.)
- DU TOIT, C.G., ROUSSEAU, P.G., SAMBURENI, P. & LE GRANGE, L.A. 2015. A System CFD Model of the Heat Transfer in a Prismatic Block. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Pringle Bay, South Africa on 15–17 July 2015.) Pringle Bay, South Africa. (Unpublished.)
- DU TOIT, C.G. 2015. Pressure Pulse in the Air-cooled RCCS - Flownex Code Model and Calculation Results. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 16–20 November 2015.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G. & PAYNE, B. 2015. Physical and Numerical Modelling of a Passive Air-cooling System. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 16–20 November 2015.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G. 2015. Break Flows in the Air-cooled RCCS - Flownex Code Model and Calculation Results. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 16–20 November 2015.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G. 2016. GAMMA+ and Flownex: Code-to-code comparison. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 29 August– 2 September 2016.) Deajon, Korea. (Unpublished.)

- DU TOIT, C.G. 2016. GAMMA+, Flownex and EES verification exercise. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 29 August– 2 September 2016.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G. & NIEMAND, P.F. 2016. Flownex/GAMMA+ results comparison of the natural cooling experimental facility (NACEF) Part I. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 29 August– 2 September 2016.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G. & NIEMAND, P.F. 2016. Flownex/GAMMA+ results comparison of the natural cooling experimental facility (NACEF) Part II. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 29 August– 2 September 2016.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G., KHOZA, S. & ROUSSEAU, P.G. 2016. An integrated thermal-hydraulic system CFD model of a prismatic block HTR core using Flownex. (Presentation given at KAERI-NWU Joint Research Collaboration Workshop held in Deajon, Korea on 29 August– 2 September 2016.) Deajon, Korea. (Unpublished.)
- DU TOIT, C.G., SHIN, D.H. & PARK, G.C. 2018. Modelling of convection heat transfer in the SNU Riser Heat transfer Experimental Facility. (Presentation given at SNU-NWU Joint Research Collaboration Workshop held in Seoul, Korea on 17–20 August 2018.) Seoul, Korea. (Unpublished.)
- DU TOIT, C.G.2018. FLOWNEX: Advanced thermal-fluid network simulation tool. (Presentation given at SNU-NWU Joint Research Collaboration Workshop held in Seoul, Korea on 17–20 August 2018.) Seoul, Korea. (Unpublished.)

21. Reports:

- DU TOIT, C.G. & LEWIS, K.L. 1989. Project IZMAR : Recirculating Flow. Stellenbosch : Bureau for Mechanical Engineering. (BM 88/77/D02.)
- DU TOIT, C.G. & LEWIS, K.L. 1989. Project IZMAR : PHOENICS Benchmark Tests. Stellenbosch : Bureau for Mechanical Engineering. (BM 88/77.)
- DU TOIT, C.G. 1989. Tapered axial cyclone. Stellenbosch : Bureau for Mechanical Engineering. (BM 89/07.) (In Afrikaans)
- DU TOIT, C.G. 1989. Annual PHOENICS User Group Report. Stellenbosch : Bureau for Mechanical Engineering. (BMD 89/03.)
- DU TOIT, C.G. 1989. VP 180/28 Vortex Generator. Stellenbosch : Bureau for Mechanical Engineering. (BM 89/07.) (In Afrikaans)
- DU TOIT, C.G. 1989. Project IZMAR : Diffuser Flows. Stellenbosch : Bureau for Mechanical Engineering. (BM 89/32.)
- DU TOIT, C.G. & VAN WYK, J.S. 1989. Project IZMAR : Combustion Modelling for the Simple Research Combustor. Stellenbosch : Bureau for Mechanical Engineering. (BM 88/79.)
- DU TOIT, C.G. 1989. Particle Tracks through the Vortex Generator. Stellenbosch : Bureau for Mechanical Engineering. (BM 89/07.) (In Afrikaans)
- DU TOIT, C.G. & VAN WYK, J.S. 1990. Project IZMAR : Combustion Modelling with Droplet Model. Stellenbosch : Bureau for Mechanical Engineering. (BM 89/217.) (In Afrikaans)
- DU TOIT, C.G. 1990. Numerical Modelling of the Simple Research Combustor. Stellenbosch : Bureau for Mechanical Engineering. (BM 88/74.)

- DU TOIT, C.G. 1991. Computer Calculation of the C_d Coefficients of the Airfoils for the Measurement of the Primary Air Flow at Lethabo Power Station. Stellenbosch : Bureau for Mechanical Engineering. (BM 90/255.) (In Afrikaans)
- DU TOIT, C.G. 1992. Numerical Simulation of Various Missile Configurations. Stellenbosch : Bureau for Mechanical Engineering. (BM 91/200.) (In Afrikaans)
- DU TOIT, C.G. 1992. Modelling of SASOL II Air–Cooled Heat Exchangers. Stellenbosch : University of Stellenbosch. (US 92/01.)
- DU TOIT, C.G., THIART, G.D. & KRÖGER, D.G. 1992. Matimba ACC: Analysis of Flow Field (Phase 1). Stellenbosch : University of Stellenbosch. (US 92/02/1.)
- DU TOIT, C.G., THIART, G.D. & KRÖGER, D.G. 1993. Matimba ACC: Analysis of Flow Field (Phase 2). Stellenbosch : University of Stellenbosch. (US 92/02/2.)
- DU TOIT, C.G., THIART, G.D. & KRÖGER, D.G. 1992. Matimba ACC: Analysis of Flow Field (Phase 3). Stellenbosch : University of Stellenbosch. (US 92/02/3.)
- DU TOIT, C.G. 1996. CFD Combustion Technology Development : CFD Modelling of a Simple Cylindrical Combustor. Potchefstroom : M-Tech Mechanical. (MTH/96/001.)
- DU TOIT, C.G. 1996. CFD Combustion Technology Development : CFD Modelling of a Simple Cylindrical Combustor. Potchefstroom : M-Tech Mechanical. (MTH/96/002.)
- DU TOIT, C.G. & VISSER, J.A. 1996. CFD Combustion Technology Development : CFD Modelling of TFD Combustor : Part III. Potchefstroom : M-Tech Mechanical. (MTH/96/003.)
- DU TOIT, C.G. & VISSER, J.A. 1997. CFD Combustion Technology Development : CFD Modelling of TFD Combustor : Part IV. Potchefstroom : M-Tech Mechanical. (MTH/97/001.)
- DU TOIT, C.G. & VISSER, J.A. 1997. CFD Combustion Technology Development : CFD Modelling of TFD Combustor : Part V. Potchefstroom : M-Tech Mechanical. (MTH/97/002.)
- DU TOIT, C.G. 1998. CFD Combustion Technology Development : CFD Modelling of TOPAZ Combustor : Part I. Potchefstroom : M-Tech Mechanical. (MTH/98/001.)
- DU TOIT, C.G. 1998. CFD Combustion Technology Development : CFD Modelling of TOPAZ Combustor : Part II. Potchefstroom : M-Tech Mechanical. (MTH/98/002.)
- DU TOIT, C.G. & LE GRANGE, L.A. 1998. CFD Modelling of the Influence of Atmospheric Conditions on the Evaporative Cooler Plumes and the Diffusion of Ammonia at Vaal Reefs No 11 Shaft. Potchefstroom : M-Tech Mechanical. (MTH/98/003.)
- DU TOIT, C.G. 1999. Calculation of Reactor Pressure Vessel Wall Temperatures for the PBMR. Potchefstroom : M-Tech Mechanical. (MTH/99/002.)
- DU TOIT, C.G. 1999. Benchmark Results for Basic Hydraulic Models. Potchefstroom : M-Tech Mechanical. (PBMR-0007.)
- DU TOIT, C.G. 1999. Determination of the Heat Transfer and Friction Coefficients for the Recuperator. Potchefstroom : M-Tech Mechanical. (PBMR-0009.)

- EMSLIE, F.N., DU TOIT, C.G. & GREYVENSTEIN, G.P. 1999. Contractors report for the Flownet acceptance test procedures. Potchefstroom : M-Tech Mechanical. (PBMR-0010.)
- NAUDÉ, G. & DU TOIT, C.G. 2000. Flownet validation: Heat transfer through a vessel wall. Potchefstroom : M-Tech Industrial. (FNVAL-0002.)
- GREYVENSTEIN, G.P. & DU TOIT, C.G. 2000. Flownet v5.2 User Manual. Potchefstroom : M-Tech Industrial.
- DU TOIT, C.G. 2001. Investigation into the flow distribution in the core of the pebble-bed reactor for iso-thermal conditions. Potchefstroom : M-Tech Industrial. (PBMR–0041.)
- DU TOIT, C.G. 2001. Calculation of laminar Nusselt number and friction factor for the Heatric recuperator profile. Potchefstroom : M-Tech Industrial. (PBMR-0052.)
- GREYVENSTEIN, G.P. ROUSSEAU, P.G. & DU TOIT, C.G. 2003. 2D axi-symmetric PBMR reactor model. Potchefstroom : M-Tech Industrial. (PBMR-0060.2.)
- VAN DER MERWE, J. & DU TOIT, C.G. 2003. XNet version 2.0 Software project plan. Potchefstroom : M-Tech Industrial. (XNET-0001.)
- VAN DER MERWE, J. & DU TOIT, C.G. 2003. XNet version 2.0 – User requirement specification. Potchefstroom : M-Tech Industrial. (XNET-0002.)
- LEMMER, T.N. & DU TOIT, C.G. 2004. Modelling of rectangular sedimentation tanks. Pretoria : WRC. (K5/998/0/1.)
- DU TOIT, C.G. 2004. Numerical analysis of the porosity of annular packed beds : Analysis plan. Potchefstroom : M-Tech Industrial. (PBMR-0077_APL.)
- DU TOIT, C.G. 2004. Numerical analysis of the porosity of annular packed beds. Potchefstroom : M-Tech Industrial. (PBMR-0077.2)
- DU TOIT, C.G. 2004. Flow distribution in the core of the annular pebble-bed reactor for iso-thermal flow conditions. : M-Tech Industrial. (PBMR-0078)
- DU TOIT, C.G. 2006. Flownex theory manual – Advanced pebble bed reactor (Generation 3). : M-Tech Industrial. (FNXTH-0038)
- DU TOIT, C.G. 2008. HPTU pressure drop tests summary report. Potchefstroom : M-Tech Industrial. (HPTU002-0011)
- DU TOIT, C.G. 2008. HPTU convection coefficient tests summary report. Potchefstroom : M-Tech Industrial. (HPTU002-0016)
- DU TOIT, C.G. 2008. HPTU braiding effects tests summary report. Potchefstroom : M-Tech Industrial (HPTU002-0039)
- DU TOIT, C.G. 2008. The Simple Algorithm for Compressible Flow in a Cylindrical co-ordinate System : Formulation of the energy equation. : M-Tech Industrial (MTNEC-0002-MEM-CGDT-0001)
- DU TOIT, C.G. & VILJOEN, C.F. 2011. Grain Silo Bag - Concept Design Report. : M-Tech Industrial (GSB-001)
- DU TOIT, C.G. 2016. Radiation Heat Transfer Test Problem. : North-West University (CNE-2016-001)
- DU TOIT, C.G. 2016. Comparison of the GAMMA+ and Flownex Philosophies. : North-West University (CNE-2016-002)
- DU TOIT, C.G. & NIEMAND, P.F. 2016. Implementation of forced, mixed and free convection het transfer in Flownex. : North-West University (CNE-2016-003)

- DU TOIT, C.G. & VAN DER MEER, W.A. 2017. Advanced High Temperature Reactor Research and Development: Water-Cooled RCCS Conceptual Analysis. : M-Tech Industrial. (MTSS-NWU10-0001)
- DU TOIT, C.G. 2017. Flownex RCCS break flow models. : North-West University (CNE-2017-001)
- DU TOIT, C.G. 2017. Break Model Analysis. : North-West University (CNE-2017-002)
- DU TOIT, C.G. 2017. Aiding and Opposing Flow in Mixed Convection. : North-West University (CNE-2017-003)
- DU TOIT, C.G. 2017. Implementation of forced, mixed and free convection het transfer in Flownex. : North-West University (CNE-2017-004)
- DU TOIT, C.G. 2017. First order versus second order approaches to convection heat transfer: Theory and evaluation. : North-West University (CNE-2017-005)
- DU TOIT, C.G. 2018. Calculation of overlaps in cylindrical packed beds. : North-West University (CNE-2018-001-RevB)
- DU TOIT, C.G. 2018. Calculation of the axial variation of the porosity and the hydraulic diameter in cylindrical packed beds. : North-West University (CNE-2018-002-RevB)
- DU TOIT, C.G. 2018. Calculation of radial variation of the porosity in cylindrical packed beds. : North-West University (CNE-2018-003-RevB)

22. Post-graduate students:

- Completed:
  - A du P le Grange, M.Eng.(US), Supervisor.
  - GPAG van Zijl, M.Eng. (US), Supervisor.
  - M Rossouw, M.Eng. (US), Supervisor.
  - K Duvenhage, Ph.D. (US), Co-supervisor.
  - JJ van der Walt, M.Eng. (PUCHE), Supervisor.
  - JD Smit, M.Eng. (PUCHE), Supervisor.
  - A du Toit, M.Eng. (PUCHE), Supervisor.
  - GW Hasse, M.Eng. (PUCHE), Supervisor.
  - RS Neethling, M.Eng. (PUCHE), Supervisor.
  - BJ Steyn, M.Eng. (PUCHE), Supervisor.
  - L de Vries, M.Eng. (PUCHE), Co-supervisor.
  - J-H Kruger, M.Eng. (PUCHE), Supervisor.
  - JB Serfontein, M.Eng. (PUCHE), Supervisor.
  - J van der Merwe, M.Eng. (PUCHE), Supervisor.
  - RV Coetzee, M.Eng. (PUCHE), Supervisor.
  - J Bothma, M.Eng. (PUCHE), Supervisor.
  - AE Glover, M.Eng. (PUCHE), Supervisor.
  - J Ackerman, M.Eng. (PUCHE), Supervisor.
  - CF Viljoen, M.Eng, (PUCHE), Supervisor.
  - GC van Eeden, M.Eng. (PUCHE), Supervisor.
  - G Gordon, M.Eng. (PUCHE), Supervisor.
  - J-H Kruger, Ph.D. (NWU), Supervisor.
  - RS Neethling, Ph.D. (NWU), Supervisor.
  - RV Coetzee, Ph.D. (NWU), Supervisor.

  - AJK van der Walt, M.Eng. (NWU), Supervisor.
  - TN Hoogenboezem, M.Eng. (NWU), Co-supervisor.
  - DPR Venter, M.Sc. (NWU) Supervisor.
  - W van Antwerpen, Ph.D. (NWU) Co-supervisor.
  - K Mannar, M.Eng. (NWU) Supervisor.
  - P Sukdeo, M.Sc. (NWU) Supervisor.
  - JJ Bosman, Ph.D. (NWU), Supervisor.
  - ML Pitso, M.Eng. (NWU) Co-supervisor.
  - FC Barnard, M.Eng. (NWU) Co-supervisor.
  - LE Jacobs, M.Eng. (NWU) Supervisor.
  - HJ Reyneke, M.Eng. (NWU) Supervisor.
  - ACN Preller, M.Eng. (NWU) Supervisor.
  - WGJ Theron, M.Eng. (NWU) Supervisor.
  - WA van der Meer, M.Eng. (NWU) Co-supervisor.
  - AM de Villiers (Odendaal), M.Eng. (NWU) Supervisor.
  - AJ Kriel, Ph.D. (NWU), Co-supervisor.
  - BG Kleynhans, M.Eng. (NWU) Co-supervisor.
  - N van der Westhuisen M.Eng. (NWU) Co-supervisor.
  - WJS van der Merwe, M.Eng. (NWU) Co-supervisor.
  - L Fick, M.Eng. (NWU) Co-supervisor.
  - M de Beer, M.Eng. (NWU), Co-supervisor.
  - K Sehoana, M.Eng. (NWU), Co-supervisor.
  - P Sambureni, M.Eng. (NWU), Co-supervisor.
  - PF Niemand, M.Eng. (NWU), Supervisor
  - OC Koekemoer, M.Eng. (NWU), Co-supervisor.
  - GJ Nel, M.Eng. (NWU), Supervisor
- Registered:
  - M de Beer, Ph.D. (NWU), Co-supervisor.
  - S van der Walt, Ph.D. (NWU), Co-supervisor.
  - S Khoza, Ph.D. (NWU), Co-supervisor.
  - MC Potgieter, Ph.D. (NWU), Co-supervisor
  - PF Niemand, Ph.D. (NWU), Supervisor
  - TH Roos, Ph.D. (NWU), Supervisor
  - HJ Vermaak, M.Eng. (NWU), Supervisor
  - GJ Nel, Ph.D. (NWU), Supervisor
  - H Strübing, M.Eng. (NWU), Co-supervisor
  - JP van der Walt, M.Eng. (NWU), Co-supervisor
  - P van Loggerenberg, M.Eng. (NWU), Supervisor
  - OC Koekemoer, Ph.D. (NWU), Co-supervisor.