UNIVERSITY OF PRETORIA

CURRICULUM VITAE – PROF Ken Craig

1. BIOGRAPHICAL SKETCH

1.1 GENERAL INFORMATION

Surname	Craig					**First names**			Kenneth John (Ken)				
Citizenship	South African					**Title**	Prof		**Female**		**Male**	X	
Population group	**African**		**Coloured**		**Indian**		**White**	**X**	**Other** ***(Please specify)***				
Department	Mechanical and Aeronautical Engineering					**Position**			Professor				
Direct Telephone	012-420-3515					**Direct Telefax**							
E-mail	ken.craig@up.ac.za												
Date of appointment	1 December 2012					**Permanent full-time**			X		**Temporary full-time**		

1.2 ACADEMIC QUALIFICATIONS OBTAINED

Degree/ Diploma	Field of study	Higher education institution	Year	Distinctions
PhD	Aeronautical Engineering	Stanford University	1992	N/A
MEng	Mechanical Engineering	University of Pretoria	1988	Cum Laude
BEng	Mechanical Engineering	University of Pretoria	1985	Cum Laude
Matric	Afrikaans, English, Mathematics, Science, Geography, French, Computer Studies	Menlopark High School, Pretoria	1981	7 distinctions

1.3 WORK EXPERIENCE TO DATE

Name of employer	Capacity and/or type of work	Period From mm//yy to *mm//yy*
University of Pretoria	Professor	11/2012 to present
Westinghouse Electric South Africa	Fellow Engineer	09/2010 to 10/2012
Westinghouse Electric South Africa	Principal Engineer	11/2009 to 09/2010
Westinghouse Electric South Africa	Senior Mechanical Engineer	07/2007 to 11/2009
University of Pretoria	Professor	01/2000 to 06/2007

University of Pretoria	Associate Professor	01/1994 to 12/1999
University of Pretoria	Lecturer	01/1993 to 12/1993
Stanford University/ NASA Ames Research Center	Research assistant	01/1991 to 12/1991
1.4 PROFESSIONAL REGISTRATION		
PrEng	ECSA (Engineering Council of South Africa)	1995, no. 950184, valid until 18 May 2025.

2. TEACHING ACTIVITIES

2.1 Courses presented

Course	**Level *(e.g. second year, Masters)***	**Self developed *(Yes or No)***
Advanced Fluid Mechanics MSX781	Post-graduate (2014-2016)	Yes
Numerical Thermoflow MSM781	Post-graduate (2013-)	Yes
Numerical Thermoflow MSM780	Post-graduate (2013-)	Yes
Thermoflow MTV310	Third year (2014-2019)	Yes
Simulation-Based Design MOW323	Third year (2017-2020)	Yes
Thermodynamics	Second year (2013)	No
Fluid Mechanics	Third year (1994-2007, 2020-)	Yes
Experimental Techniques	Second year (1993-1997)	No
Statistics for Engineers	Second year (1998-2000)	Yes
Mechanical Engineering	Fourth year (Electrical Eng) (1993-1998)	No
Fluid Mechanics and Thermodynamics	Fourth year (Electrical Eng) (2000)	Yes
Machine Design	Second year (1993-1995)	No
Communication	First year (1996-1999)	No
Communication	Fourth year (1993-1999)	No
Design Project	Fourth year (1993-1996, 2000, 2004, 2006-2007, 2013-)	No
Research Project	Fourth year (1993-2000, 2002-2004, 2006-2007, 2013-)	No
Advanced Fluid Mechanics	Post-graduate (2004-2006)	No
Numerical Techniques	Post-graduate (2004)	No
Numerical Thermoflow MSM732	Post-graduate (1993-2004, 2006)	Yes
Computational Fluid Dynamics	Post-graduate (1994-2000)	Yes
Vehicle Thermoflow	Post-graduate (1993, 1995)	No
Vehicle Engineering	Post-graduate (1996, 1998, 2000, 2002)	No

2.2 Other education and pedagogic courses presented

Course	**Year**	**Institution**
Practical Mathematical Optimization for Engineers and Scientists	1999-2000	Continuing Education, University of Pretoria

3 TEACHING OUTPUTS

3.1 Educational publications and products

1. Craig, K.J. & C.C. van Waveren, "Simulating the Engineering Project Environment Using Cooperative Learning: A Second-Year Course Case Study", International Journal for Mechanical Engineering Education, Vol. 25, No. 4, pp.290-298, October 1997.
2. Craig, K.J., “Computational study of the aerodynamics and control by blowing of asymmetric vortical flows over delta wings”, Ph.D thesis, Department of Aeronautics and Astronautics, Stanford University, 1992.
3. Craig, K.J., “Dynamic modelling of hydraulic components”, MEng dissertation, Department of Mechanical Engineering, University of Pretoria, 1988.

4 OTHER TEACHING CONTRIBUTIONS

4.1 Participation in national and international teaching associations, bodies, committees

1. Chair of Faculty of Engineering Teaching Committee (1996-2000).
2. Attended course by Prof. Richard Felder, University of North Carolina. Effective Teaching, 25 August 1994, WITS
3. Attended course by Prof. Richard Felder, University of North Carolina. Effective Teaching, 30-31 May 1996, WITS
4. Organised 1996 and 1999 course (13-14 September 1999, same presenter and topic) with 40 and 42 attendees respectively from the Faculty of Engineering, University of Pretoria as part of duties as Chair: Teaching Committee of Faculty of Engineering, University of Pretoria.
5. Attended CDIO workshop, 14-15 February 2005, University of Pretoria.

5 RESEARCH ACTIVITIES

5.1 Former supervision or co-supervision *(completed)*

Name of student	Degree/Title of dissertation/ thesis and date	Supervisor	Co-supervisor(s)	Year degree awarded
DJ de Kock	MEng, Industrial Applications of Computational Flow Optimisation	K.J. Craig	-	1999, cum laude
PJ Venter	MEng, Optimisation of Grid-Spacing and Turbulence-Modelling Parameters for Atmospheric Flows	KJ Craig	-	1999, cum laude

PP Penning	MEng, Experimental and Computational Investigation into Race Car Aerodynamics	KJ Craig	-	1999
JC Kloppers	MEng, Analysing Fly-Ash Erosion in Coal-Fired Boilers using Computational Fluid Dynamics	KJ Craig	-	2000
M van Zijl	MEng, Prediction of flow-induced vibration in shell-and-tube heat exchangers	KJ Craig	Prof PS Heyns	2004
KW Makgata	MEng, Computational analysis and optimisation of the inlet system of a high-performance rally engine	KJ Craig	DJ de Kock	2005
DJ de Kock	PhD, Optimal Tundish Design Methodology in a Continuous Casting Process	KJ Craig	-	2005
TC Kingsley	MEng, Multidisciplinary design and optimization of liquid containers for sloshing and impact	KJ Craig	-	2005, cum laude
GJ de Wet	MEng, CFD Modelling and mathematical optimisation of a continuous caster submerged entry nozzle	KJ Craig	-	2005, cum laude
PG de Beer	MEng, Continuous Cast Width Prediction Using a Data Mining Approach	KJ Craig	-	2007
MD Marais	MEng, Computational fluid dynamics investigation of wind loads on heliostat structures	KJ Craig	Prof JP Meyer	2017, cum laude
M Moghimi Ardekani	PhD, Optical, thermal and economic optimization of Linear Fresnel Collector mirror field and receiver	KJ Craig	Prof JP Meyer	2017
L Smith	PhD, Investigation of a modified low-drag body for an alternative wing-body-tail configuration	KJ Craig	Prof GR Spedding, Prof JP Meyer	2017
HJ Breedt	MEng, Atmospheric Boundary Layer Stability and its Application to Computational Fluid Dynamics	KJ Craig		2018, cum laude
JJF Wiid	MEng, The Experimental and Numerical Investigation of the Influence of Shaft Rotation on Leakage Rate of Non-Contacting Seals Found in Turbine Applications	KJ Craig	Dr CJH Thiart	2018

J Marsberg	MEng, Development of numerical techniques for evaluation of point-focus solar cavity receiver performance	KJ Craig	Prof JP Meyer	2018
JR Wolmarans	MEng, Fluid-Structure Interaction Investigation of a Medium-Sized Heliostat	KJ Craig	-	2019
A Beneke	MEng, The Simultaneous Optimization of the Nose and Tail Geometry of a High Speed Train for Drag and Crosswind Stability	KJ Craig	-	2019, cum laude
M Slootweg	MEng, Numerical Performance Analysis of Novel Solar Tower Receiver	KJ Craig	Prof JP Meyer	2019
Derwalt Erasmus	MEng (Stellenbosch University), The Development of a Novel Impingement Heat Transfer Device	Prof TW von Backström, Dr M Lübkoll	Prof KJ Craig	2020, cum laude
Kyle A Goddard	MEng, Investigation of wind patterns on Marion Island using Computational Fluid Dynamics and measured data	Prof KJ Craig	Mrs J Schoombie	2021, cum laude
Ansuya E Rungasamy	PhD, Performance Assessment and Optimization of Different Configurations of Etendue Conserving Compact Linear Fresnel Solar Fields	Prof KJ Craig	Prof JP Meyer	2021
Jesse Quick	MEng, Computational Investigation of Swirling Jet Impingement in a Concentrated Solar Tower Receiver	Prof KJ Craig	Prof JP Meyer	2021, cum laude
Ngoni Mutangara	MEng, Numerical Implementation of the Power Balance Method for Aerodynamic Performance Assessment	Dr L Smith	Prof KJ Craig	2021, cum laude

5.2 Current post-graduate students

Name of student	**Degree enrolled for and date of first registration**	**Project title**	**Supervisor**	**Co-supervisor(s)**	**Year of 1st registra-tion**
Current:					
Pierre E Poulain	PhD	SRS modelling of flow over heliostats	Prof KJ Craig	Prof JP Meyer	2013
Milan Swart	MEng	A CFD-based approach to selecting a CST plant site location around a ferromanganese smelter	Prof KJ Craig	SAC Hockaday, Prof QR Reynolds	2019

Min Lee	MEng	Fuselage aftbody analysis and optimisation for efficient propulsion integration	Dr L Smith	Prof KJ Craig	2019
Prashant Jeewa	MEng	Electronics cooling using impingement phase-change heat transfer	Prof KJ Craig	Prof JP Meyer	2020
Diwan Odendaal	MEng	Fuselage optimisation for low Reynolds numbers	Dr L Smith	Prof KJ Craig	2020
Duncan McGee	MEng	Optimization of debossed dimples on a symmetrical airfoil	Dr L Smith	Prof KJ Craig	2021
Ryan Raubenheimer	MEng	Fuselage optimisation for efficient propulsion integration	Dr L Smith	Prof KJ Craig	2021
Alison King	MEng	Avian aero	Dr L Smith	Prof KJ Craig J Schoombie	2022
Janine Schoombie	PhD	The effect of changing wind on the flight capabilities of Grey-headed albatrosses	Dr L Smith	Prof KJ Craig	2021
Daniell Wright	MEng	Electronics cooling using impingement boiling heat transfer	Prof KJ Craig	Prof JP Meyer, Prof P Valluri	2021
Luwan Lüdick	MEng	Electronics cooling using impingement phase-change heat transfer	Prof KJ Craig	Prof JP Meyer, Prof P Valluri	2022
Graham Lloyd	MEng	Gull-wing optimization for stability	RJ Huyssen	Prof KJ Craig, Dr C Crosby	2021
Gideon de Wet	PhD	Transient system modelling of solar-gas hybrid Brayton cycle	Dr WG le Roux	Prof KJ Craig	2021

5.3 Obtaining research funds *(Optional)*

Origin of research funds (e.g. contract research, THRIP, international funding organisations, other(s)	**Title of research project or programme**	**Duration**	**Money allocated (R) *(Optional - exact amounts not required)***
Foundation for Research Development	Four-year Development Programme on Air Pollution Simulation	1994-1997	
THRIP, Iscor, Columbus, Vesuvius, LTM, Foseco UK and LGI	Numerical modelling of continuous-casting processes	1998-2004	
THRIP, Eskom TRI and LGI	Modelling of Turbulent Flow of Two-Phase Gas-Particle Fluids	1998-2000	
National Research Foundation	Optimal Design for Industry	2001-2007	
Mellon Foundation	Reliability and Robustness-based Design Optimization	2002-2004	
University of Pretoria, Institutional Research Theme Sub-programme: Energy	Optimization in Renewable Energy Systems	2013-2014	

University of Pretoria, Research Development Programme	Optimization in Concentrated Solar Power	2013	
South African National Antarctic Programme (SANAP)	Modelling wind patterns and their ecological impacts (co-investigator)	2018-2020	
ThermaSMART Research and Innovation Staff Exchange, Horizon 2020, co-investigator	Heat transfer enhancement in electronics cooling using jet impingement boiling (co-investigator)	2019-2022	

6 RESEARCH AND PROFESSIONAL OUTPUTS

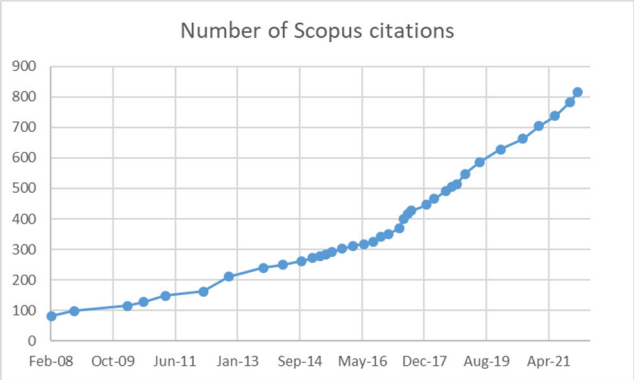
6.1 Citations to peer-reviewed articles

ORCID: 0000-0002-7960-2148

ResearcherID: V-8784-2018

817 **Scopus** citations – Author ID 7101975654 (20 Jan 2022), h-index = 14, Highest cited papers 97 and 91, respectively.

Scopus citation history (2008-2022):



Google Scholar indices (21 Jan 2022):

1781 citations, h-index = 21, i10-index = 37

Web of Science (9 Sep 2021):

614 citations, h-index 12

6.2 Publications in peer-reviewed or refereed journals

(2020 impact factors in brackets)

(average journal impact factor (weighted by number of articles in journal = 3.88))

1. Rungasamy, A.E., Craig, K.J. & Meyer, J.P., “Comparative performance evaluation of candidate receivers for an etendue-conserving compact linear Fresnel mirror field”, Solar Energy, Vol.231, pp.646-663, 1 January 2022. (5.742)
2. Goddard, K.A., Craig, K.J., Schoombie, J. & Le Roux, P.C., "Investigation of ecologically relevant wind patterns on Marion Island using Computational Fluid Dynamics and measured data", Ecological Modelling, Vol.464, 109827, Feb 2022. (2.974)

3. Poulain, P.E., Craig, K.J. & Meyer, J.P., "Transient simulation of an atmospheric boundary layer flow past a heliostat using the Scale-Adaptive Simulation turbulence model", Journal of Wind Engineering and Industrial Aerodynamics, Vol.218, 104740, Nov 2021, https://doi.org/10.1016/j.jweia.2021.104740. (4.082)
4. Mutangara, N.E., Smith, L., Craig, K.J. & Sanders, D.S., "Computational Investigation of Potential Energy Recovery within the wake of Unpowered Configurations using the Power Balance Method", JA-C036172, Journal of Aircraft, Published online: 30 July 2021. **https://doi.org/10.2514/1.C036172** (1.748)
5. Rungasamy, A.E., Craig, K.J. & Meyer, J.P., "A review of linear Fresnel primary optical design methodologies", Solar Energy, Vol. 224, pp.883-854, 2021. (5.742)
6. Craig, K.J,.Slootweg, M., L Roux, W.G., Wolff, T.M. & Meyer, J.P., "Using CFD and ray tracing to estimate the heat losses of a tubular cavity dish receiver for different inclination angles", Solar Energy, Vol.211, pp.1137-1158, 2020. (5.742)
7. Wolmarans, J.R. & Craig, K.J., "One-way Fluid-Structure Interaction of a Medium-Sized Heliostat using Scale-Resolving CFD Simulation", Solar Energy, Vol. 191, pp.84-99, 2019 (5.742).
8. Slootweg, M., Craig, K.J. & Meyer, J.P., "A computational approach to simulate the optical and thermal performances of a novel complex-geometry solar tower molten salt cavity receiver", Solar Energy, Vol.187, pp.13-29, 2019 (5.742).
9. Rungasamy, A.E., Craig, K.J. & Meyer, J.P., "Comparative study of the optical and economic performance of etendue-conserving compact linear Fresnel reflector concepts", Solar Energy, Vol. 181, pp.95-107, 2019. (5.742)
10. Smith, L., Craig, K.J., Meyer, J.P. & Spedding, G.R., "Numerical investigation of the aerodynamic performance for an alternative wing-body-tail configuration", Journal of Aircraft, Vol. 56(1), pp.250-261, 2019. (1.748)
11. Breedt, H.J., Craig, K.J. & Jothiprakasam, V.D., "Monin-Obukhov similarity theory and its application to wind modelling over complex terrain", Journal of Wind Engineering and Industrial Aerodynamics, Vol. 182, pp.308-321, 2018. (4.082)
12. Moghimi, M.A., Craig, K.J. & Meyer, J.P., "Simulation-based optimisation of a Linear Fresnel Collector mirror field and receiver for optical, thermal and economic performance", Solar Energy, Vol. 153, pp.655-678, 2017 (5.742).
13. Smith, L., Craig, K.J., Meyer, J.P. & Spedding, G.R., "Modifying low-drag bodies to generate lift: a computational study", AIAA Journal of Aircraft, Vol.54, No.3, pp.1150-1161, 2017 (1.748).
14. Craig, K.J., Moghimi, M.A., Rungasamy, A.E., Marsberg J. & Meyer, J.P., "Finite-volume ray tracing using Computational Fluid Dynamics in linear focus CSP applications", Applied Energy, Vol. 183, pp.241-256, 2016. (8.848)
15. Moghimi, M.A., Craig, K.J. & Meyer, J.P., "Optimization of a trapezoidal cavity absorber for the Linear Fresnel Reflector", Solar Energy, Vol. 119, pp.343-361, 2015. (5.742)
16. Moghimi, M.A., Craig, K.J. & Meyer, J.P., "A Novel Computational Approach to Combine the Optical and Thermal Modelling of Linear Fresnel Collectors using the Finite Volume Method", Solar Energy. Vol. 116, pp.407-427, 2015. (5.742)
17. Craig, K.J., Gauché, P. & Kretzschmar, H., "CFD Analysis of Solar Tower Hybrid Pressurized Air Receiver (HPAR) using a Dual-Banded Radiation Model", Solar Energy. Vol. 110, pp.338-355, 2014. (5.742)
18. Craig, K.J., Nieuwoudt, M.N. & Niemand, L.J., "CFD simulation of anaerobic digester with variable sewage sludge rheology", Water Research, Vol.44, No.13, pp. 4485-4497, 2013. (11.236)
19. Craig, K.J. & Stander, N., "Optimization of Shell Buckling Incorporating Karhunen-Loève-Based Geometrical Imperfections", Structural and Multidisciplinary Optimization, Vol.37 No.2, pp.185-194, 2008. (4.542)
20. De Beer, P.G. & Craig, K.J., "Continuous Cast-Width Control Using a Data Mining Approach", Ironmaking and Steelmaking, Vol.35 No.3, pp.213-220, 2008. (1.679)
21. Craig, K.J. & Roux, W.J., "On the investigation of shell buckling due to random geometrical imperfections implemented using Karhunen-Loève expansions", International Journal for Numerical Methods in Engineering, Vol.73 No.12, pp.1715-1726, 2008. (3.477)
22. Craig, K.J. & Kingsley, T.C., "Design Optimization of Containers for Sloshing and Impact", Structural and Multidisciplinary Optimization, Vol.33 No.1, pp.71-87, 2007. (4.542)
23. Craig, K.J., Stander, N., Dooge, D.A & Varadappa, S., "Automotive crashworthiness design using response surface-based variable screening and optimization", Engineering Computations, Vol.22 No.1, pp.38-61, 2005. (1.593)
24. Stander, N., Craig, K.J., Müllerschön, H. & Reichert, R., "Material identification in structural optimization using response surfaces", Structural and Multidisciplinary Optimization, Vol.29 No.2, pp.93-102, 2005. (4.542)

25. De Kock, D.J., Craig, K.J. & Pretorius, C.A., "Mathematical Maximisation of the Minimum Residence Time for a Two-Strand Continuous Caster", Ironmaking and Steelmaking, Vol.30, No.3, pp.229-234, 2003. (1.679)
26. Craig, K.J. & Stander, N., "An improved version of Dynamic-Q for simulation-based optimization using response surface gradients and an adaptive trust region", Communications in Numerical Methods in Engineering, Vol.19, No.11, 2003, pp.887-896. (2.747)
27. Craig, K.J., Stander, N. & Balasubramanyam S., "Worst-case design in head impact crashworthiness optimization", International Journal for Numerical Methods in Engineering, Vol.57, No.6, pp.795-817, 2003. (3.477)
28. Stander, N. & Craig, K.J., "On the robustness of a simple domain reduction scheme for simulation-based optimization", Engineering Computations, Vol.19 No.4, pp.431-450, 2002. This paper received one of the Emerald publisher's Literati Club Highly Commended Paper Awards for the 2002 volume. (1.593)
29. Craig, K.J., de Kock, D.J., Makgata, K.W. & de Wet, G.J. "Design Optimization of a Single-Strand Continuous Caster Tundish Using RTD Data", ISIJ International, Vol.41, No.10, pp.1194-1200, 2001. (1.739)
30. Snyman, J.A., de Kock, D.J., Craig, K.J. & Venter, P.J., "Toolkit for Design Optimization (TDO): An Educational Aid to Mathematical Modeling and Optimization", Quaestiones Mathematicae, Vol.24 Supplement 1, 2001, pp.227-236. (1.474)
31. Craig, K.J., de Kock, D.J. & Snyman, J.A., "Minimizing the Effect of Automotive Pollution in Urban Geometry Using Mathematical Optimization", Atmospheric Environment, Vol.35, No.3, pp.579-587, 2001. (4.039)
32. De Kock, D.J., Craig, K.J. & Snyman, J.A., "Using Mathematical Optimization in the CFD Analysis of a Continuous Quenching Process", International Journal for Numerical Methods in Engineering, Vol.47, No.5 pp.985-999, 2000. (3.477)
33. Craig, K.J., de Kock, D.J. & Gauché, P., "Minimization of Heat Sink Mass using CFD and Mathematical Optimization", ASME Journal of Electronic Packaging, Vol.121, No.3, pp.143-147, 1999. (1.843)
34. Craig, K.J., Venter, P.J., de Kock, D.J. & Snyman, J.A., "Optimisation of Structured Grid Spacing Parameters for Separated Flow Using Mathematical Optimisation", Journal of Wind Engineering and Industrial Aerodynamics, Vol. 80, pp.221-231, 1999. (4.082)
35. Craig, K.J., de Kock, D.J. & Snyman, J.A., "Using CFD and Mathematical Optimization to Investigate Air Pollution due to Stacks", International Journal for Numerical Methods in Engineering, Vol.44, pp.551-565, 1999. (3.477)
36. Craig, K.J. & van Waveren, C.C., "Simulating the Engineering Project Environment Using Cooperative Learning: A Second-Year Course Case Study", International Journal for Mechanical Engineering Education, Vol.25, No.4, pp.290-298, October 1997.
37. Craig, K., "Computational Study of Blowing on Delta Wings at High Alpha", AIAA J. Aircraft, Vol.30, No.6, Nov.-Dec. 1993. (1.748)

6.3a Publications in peer-reviewed or refereed journals (accepted)

6.3b Publications in peer-reviewed or refereed journals (under revision)

1. Erasmus, D.J., Lubkoll, M., Craig, K.J. & Von Backström, T.W., "Impingement Heat Transfer With Pressure Recovery", major revisions submitted to Heat and Mass Transfer, 17 Dec 2021 (2.464)

6.4 Published full-length conference papers/keynote addresses

International Conference Articles and Presentation

1. N.E. Mutangara , L. Smith , K.J. Craig, D.S. Sanders, Potential for Energy Recovery from Boundary Layer Ingesting Actuator Disk Propulsion, AIAA SciTech, San Diego, January 2022.
2. Janine Schoombie, Stefan Schoombie, Kyle Goddard, Emily Shepard, Peter Ryan, Lelanie Smith, Ken Craig, "Wind-induced collision mortality in Grey-headed Albatrosses breeding on Marion Island", World Seabird Conference 2020, Oct 2021 (presentation only).
3. Erasmus, D.J., Lubkoll, M., Craig, K.J., von Backström, T.W., "Capability of a Novel Impingement Heat Transfer Device for Application in Future Solar Thermal Receivers", SolarPACES 2019, Daegu, South Korea, 1-5 October 2019. AIP Conference Proceedings 2303, 030014 (2020); https://doi.org/10.1063/5.0029156

4. Craig, K.J., Quick, J., Slootweg, M., Meyer, J.P., "Numerical Investigation of Jet Impingement Heat Transfer in Solar Receivers", 14th International Heat Transfer Conference (HEFAT 2019), Wicklow, Ireland, 22-24 July 2019.
5. Craig, K.J., "Central Receiver Heat Transfer Enhancement using Jet Impingement with Passive Velocity Excitation", SolarPACES 2018, Casablanca, Morocco, 2-5 October 2018, AIP Conference Proceedings 2126, 030017 (2019); https://doi.org/10.1063/1.5117529. Published Online: 26 July 2019
6. Wolmarans, J.R. & Craig, K.J., "Two-Way Fluid-Structure Interaction of Medium-Sized Heliostats", SolarPACES 2018, Casablanca, Morocco, 2-5 October 2018, AIP Conference Proceedings 2126, 030064 (2019); https://doi.org/10.1063/1.5117576. Published Online: 26 July 2019
7. Craig, K.J., Slootweg, M., Meyer, J.P., Robbins, S.L., Kotzé, J.C., Honiball, R., Grobler, N.J.M., Oosthuizen, E., Winterbach, T.J., Moll, W., "CFD Simulation of Solar Receiver Jet Impingement Heat Transfer: RANS vs LES", Paper IHTC16-23262, Proceedings of the 16th International Heat Transfer Conference, IHTC-16, August 10-15, 2018, Beijing, China, pages 1971-1978, DOI: https://10.1615/IHTC16.cms.023262
8. Moghimi, M.A., Craig, K.J. & Meyer, J.P., "Annual Performance Optimization of a Linear Fresnel Collector in Pretoria, South Africa", SolarPACES 2017, Santiago, Chile, 26-29 September 2017. AIP Conference Proceedings 2033,050001 (2018)
9. Moghimi, M.A., Craig, K.J. & Meyer, J.P., "Combined Thermal, Optical and Economic Optimization of a Linear Fresnel Collector", SolarPACES 2016, Abu Dhabi, UAE, 11-14 October 2016, AIP Conference Proceedings 1850, 040004 (2017); doi:10.1063/1.4984400.
10. Moghimi, M.A., Craig, K.J. & Meyer, J.P., "Optimization of Insulation of a Linear Fresnel Collector", SolarPACES 2016, Abu Dhabi, UAE, 11-14 October 2016, AIP Conference Proceedings 1850, 040005 (2017); doi: 10.1063/1.4984401.
11. Smith, L., Craig, K.J., Meyer, J.P. & Spedding, G.R, "Optimisation of a Wing-Body-Tail Configuration with an Alternative Low Drag Fuselage and Body Trailing Edge", ICAS 2016-0223, 30th Congress of the International Council of the Aeronautical Sciences, 25-30 September 2016, DCC, Daejeon, South Korea.
12. Smith, L., Craig, K.J., Meyer, J.P., and Spedding, G.R., "Numerical and laboratory experiments on a new wing-body-tail configuration," 54rd AIAA Aerospace Sciences Meeting, AIAA 2016-0800, San Diego, CA, 2016.
13. Craig, K.J. Marsberg, J. & Meyer, J.P., "Combining Ray Tracing and CFD in the Thermal Analysis of a Parabolic Dish Tubular Cavity Receiver", SolarPACES 2015, 13-16 October 2015, Cape Town, South Africa, AIP Conference Proceedings 1734, 030009 (2016); doi: 10.1063/1.4949061.
14. Moghimi, M.A., Rungasamy, A.E, Craig, K.J. & Meyer, J.P., "Introducing CFD in the Optical Simulation of Linear Fresnel Collectors", SolarPACES 2015, 13-16 October 2015, Cape Town, South Africa, AIP Conference Proceedings 1734, 020015 (2016); doi: 10.1063/1.4949039.
15. Poulain, P.E., Craig, K.J. & Meyer, J.P., "Influence of the gap size on the wind loading on heliostats", SolarPACES 2015, 13-16 October 2015, Cape Town, South Africa, AIP Conference Proceedings 1734, 020019 (2016); doi: 10.1063/1.4949043.
16. Rungasamy, A.E., Craig, K.J. & Meyer, J.P., "3D CFD modeling of a slanted receiver in a compact linear Fresnel plant with etendue-matched mirror field", SolarPACES 2014, 16-19 September 2014, Beijing, China. Energy Procedia Vol.69 pp. 188-197, May 2015.
17. Marais, M.D., Craig, K.J. & Meyer, J.P., "Computational flow optimization of heliostat aspect ratio for wind direction and elevation angle", SolarPACES 2014, 16-19 September 2014, Beijing, China. Energy Procedia Vol.69 pp. 148-157, May 2015.
18. Marsberg, J., Craig, K.J. & Meyer, J.P., "Heliostat field heat flux map generation for CFD optimization of central receiver", poster at SolarPACES 2014, 16-19 September 2014, Beijing, China.
19. Craig, K.J., Gauché, P. & Kretzschmar, H., "Optimization of Solar Tower Hybrid Pressurized Air Receiver using CFD and Mathematical Optimization", SolarPACES 2013, 17-20 September 2013, Las Vegas, USA. Energy Procedia Vol.49 pp. 324-333, 2014.
20. Craig, K.J., Harkness, A.W., Kritzinger, H.P. & Hoffmann, J.E., "Analysis of AP1000 Reactor Vessel Cavity and Support Cooling", Paper ECN2010-A0459, European Nuclear Conference (ENC2010), 30 May - 2 June 2010, Barcelona, Spain.
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38. Craig, K.J., "Report on Computational Analysis of Air Quenching of Cold Mill Strip (AP2 Quench 1) – Phase 1: Analysis of Existing Air System", Report for Columbus Stainless, June 2007.
39. Craig, K.J., "Report on Computational Analysis of Air Quenching of Cold Mill Strip (AP2 Quench 1) – Phase 2a-c: Modification of Air System", Report for Columbus Stainless, June 2007.
40. Craig, K.J. & de Kock, D.J., "Report on Computational Fluid Dynamics (CFD) Modelling Study of the Direct Reduction Dust Settling Chamber (DSC) and After Burning Chamber (ABC), Case 3," Report for Mittal Steel Vanderbijlpark, August 2006.
41. Craig, K.J. & de Kock, D.J., "Report on Computational Fluid Dynamics (CFD) Modelling Study of the Direct Reduction Dust Settling Chamber (DSC) and After Burning Chamber (ABC), Cases 1-2," Report for Mittal Steel Vanderbijlpark, June 2006.
42. Pretorius, C.A. & Craig, K.J., "Report on Design of Descaling Restrictor," Report for Mittal Steel, August 2005.
43. Kingsley, T.C., De Kock, D.J. & Craig, K.J., "Report on CFD Modeling of the Launder and Splash Plate in a Granulation Process, Phase 1," Report for Ferrometal of Samancor, February 2005.
44. Craig, K.J., "Report on CFD Analysis of Dust Extraction System for Highveld Steel Plant, Phase 1-2," Report for IST Delkor, July 2004.
45. Craig, K.J., "Report on CFD Analysis of Dust Extraction System for Highveld Steel Plant, Phase 3," Report for IST Delkor, July 2004.
46. Craig, K.J., "Report on Optimisation of Plant Defects using Neural Network Model," Report for Columbus Stainless, April 2004.
47. Craig, K.J., "Report on Training and prediction of defects using Neural Network Model," Report for Columbus Stainless, February 2004.
48. Craig, K.J. & Haarhoff, L.J., "Report on CFD Analysis of Modifications to Air Wiper System for Temper Mill," Report for Iscor Vanderbijlpark, September 2003.
49. Craig, K.J. & Haarhoff, L.J., "Report on CFD Analysis of Existing Air Wiper System for Temper Mill," Report for Iscor Vanderbijlpark, June 2003.
50. Craig, K.J. & Haarhoff, L.J., "Report on Computational Investigation into ESP Pressure Drop," Report for IST Industrial, March 2001.
51. Craig, K.J. & Haarhoff, L.J., "Report on Computational Investigation into Knockout Pot Fluid Dynamics," Report for IST Industrial, January 2001.

52. Craig, K.J., “Report on Investigation into Settling Velocity of Dust Particles in Pipe,” Report for IST Industrial, January 2001.
53. Craig, K.J., de Kock, D.J. & Makgata, K.W., “Report on Mathematical Optimisation of the Steady-State Operation of the Columbus Steel Caster Tundish,” Report for Columbus Stainless, November 2000.
54. Craig, K.J. & de Kock, D.J., “Report on CFD Analysis and Optimisation V1-V2 Tundish. Phase 1 – Analysis of Starting Design: Configuration 1,” Report for Iscor Vanderbijlpark, October 2000.
55. Craig, K.J., De Kock, D.J. & Venter, P.J., “Report on Computational Investigation of the Steady-State Operation of the V1/V2 Tundishes of Iscor Vanderbijlpark,” Report for Iscor, February 2000.
56. Craig, K.J. & de Kock, D.J., “Report on Analysis of Ventilation in Bayside Smelter Potrooms B and C,” Report for Steeledale Cladding, November 1999.
57. Craig, K.J. & de Kock, D.J., “Report on Air Wiper System,” Report for Iscor Vanderbijlpark, August 1999.
58. Craig, K.J., P. Gauché & de Kock, D.J., “Report on Computational Modelling of Flow and Heat Transfer in Mozal Aluminium Smelter,” Report for Steelevent, Phases 1-5, September-October 1998.
59. Craig, K.J., P. Gauché & de Kock, D.J., “Report on Computational Modelling of Flow and Heat Transfer in Mozal Aluminium Smelter,” Report for SNC♦Lavalin-EMS (Pty) Ltd, July 1998.
60. Craig, K.J. & de Kock, D.J., “Report on Analysis of Existing Air Wiper and Design of Improved Air Wiper for Tandem Cold Mill,” Report for Iscor ITEC, March 1998.
61. Craig, K.J. & de Kock, D.J., “Report on Computational Investigation into Flow Phenomena in Quench Head Assembly – Phase 3: Modifications to existing quench head,” Report for Iscor ITEC, November 1997.
62. Craig, K.J. & de Kock, D.J., “Report on Computational Investigation into Flow Phenomena in Quench Head Assembly – Phase 1: Modelling of existing quench head,” Report for Iscor ITEC, September 1997.
63. Craig, K.J. & de Kock, D.J., “Report on the Design of Ducting for Air Curtain for Electric Furnace,” Report for Iscor ITEC, August 1997.
64. Craig, K.J. & de Kock, D.J., “Report on the Analysis and Design of an Air Curtain for Electric Furnace,” Report for Iscor ITEC, June 1997.

Mining industry

65. Craig, K.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phase 9,” Report for De Beers Group Services, November 2006.
66. Craig, K.J., “Report on Regression of RF Accelerator Data, Phase 1,” Report for De Beers Consolidated Mines, August 2003.
67. Craig, K.J. & Kingsley, T.C., “Report on CFD Determination of Duct Pressure Drop,” Report for Fläkt Woods Fans, May 2003.
68. Craig, K.J., “Report on CFD Feasibility Study of Pressure-Operated Mine Shaft Transport System, Phases 1-2,” Report for CSIR Miningtek, March 2003.
69. Craig, K.J., “Report on CFD Analysis of Bunton Sections,” Report for Anglo Operations Limited, Anglo Technical Division: Structural Engineering, November 2001.
70. Craig, K.J. & Haarhoff, L.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phase 8,” Report for De Beers, Debtech Diamond Research Laboratory, Minerals Processing Division, February 2001.
71. Craig, K.J. & De Kock, D.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phase 6,” Report for De Beers, Debtech Diamond Research Laboratory, Minerals Processing Division, December 2000.
72. Craig, K.J. & de Kock, D.J., “Report on Investigation into Aerodynamic Buffeting of Mine Cages Moving Past Shaft Transition Region - PHASE 2: Two porous cages (empty and fully loaded) moving in opposite directions and passing at three different locations,” Report for Anglo American Technical Services, December 2000.
73. Craig, K.J., Haarhoff, L.J. & De Kock, D.J., “Report on CFD Determination of Duct Pressure Drop,” Report for ABB Fans, August 2000.
74. Craig, K.J. & de Kock, D.J., “Report on Investigation into Aerodynamic Buffeting of Mine Cage Moving Past Shaft Transition Region,” Report for Anglo American Technical Services, July 2000.
75. Craig, K.J. & Venter, P.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phases 4-5,” Report for De Beers, Debtech Diamond Research Laboratory, Minerals Processing Division, February 2000.
76. Craig, K.J. & Venter, P.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phase 3,” Report for De Beers, Debtech Diamond Research Laboratory, Minerals Processing Division, November 1999.
77. Craig, K.J. & Venter, P.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phase 2 – 2% duty cycle,” Report for De Beers, Debtech Diamond Research Laboratory, Minerals Processing Division, August 1999.

78. Craig, K.J. & Venter, P.J., “Report on Computational Investigation into Flow Phenomena in Deuterium Gas Target – Phase 1 – 20% duty cycle,” Report for De Beers, Debtech Diamond Research Laboratory, Minerals Processing Division, July 1999.

Civil engineering CFD applications

79. Craig, K.J., “Report on Computational Analysis of Outlet from Filter House 1 – Vereeniging”, Report for Sinotech cc, August 2007.
80. Craig, K.J., “Report on Computational Fluid Dynamics (CFD) Modelling Study of Hidrain Liner: Phase 2,5 - Holfontein geometry case study”, Report for Aquatan, November 2006.
81. Craig, K.J., “Report on Computational Fluid Dynamics (CFD) Modelling Study of Hidrain Liner: Phase 1,4 - Hydraulic resistance characterization,” Report for Aquatan, October 2006.
82. Craig, K.J., “Report on Analysis of New Outlet Works of Flag Boshielo Dam, Phase 2,” Report for Lebalelo Water Users Association, October-November 2003.
83. Craig, K.J., “Report on Analysis of New Outlet Works of Flag Boshielo Dam, Phase 1,” Report for Lebalelo Water Users Association, October 2003.
84. Craig, K.J. & de Kock, D.J., “Report on Computational Fluid Dynamics (CFD) Investigation into Paris Dam Outlet Water Model Vortex Formation,” Report for Department of Water Affairs and Forestry, November 2002.

Industrial CFD applications

85. Craig, K.J., “Report on CFD Modelling for Tank F-29604 on the Fuel Component Transfer Project at Natref, Sasolburg: CASE 1: Filling with 10" inlet pipe; CASE 2: Filling with 2 x 16" diffusers inlets”, Report for Sasol Technology, Sasolburg, January 2007.
86. Craig, K.J., “Report on Computational Fluid Dynamics Study of Liquor Destructor Stack Phase 2ab - Optimisation (Variation of vent gap height and orifice diameter)”, Report for BE Morgan and Associates, January 2007.
87. Craig, K.J., “Report on Computational Fluid Dynamics Study of Liquor Destructor Stack Phase 1 - Base case (100mm vent gap and 1280mm restriction)”, Report for BE Morgan and Associates, November 2006.
88. Craig, K.J., “Report on CFD Analysis of Venturi in Water Treatment System,” Report for Clearwater Engineering, June 2005.
89. Craig, K.J., “Report on CFD Analysis of Stadium,” Report for Dekker & Gelderblom Consulting Engineering, BKS, April 2005.
90. Craig, K.J., “Report on CFD Analysis of Antenna for Wind Forces: Phase 1,” Report for BKS Advantech, March 2005.
91. Craig, K.J., “Report on CFD Analysis of Antenna for Wind Forces: Phase 2,” Report for BKS Advantech, March 2005.
92. Craig, K.J., “Report on CFD Analysis of Venturi in Water Treatment System,” Report for Clearwater Engineering, October 2004.
93. Craig, K.J. & Kingsley, T.C., “Report on CFD Study of Air Chiller Mixing in Shaft Headgear and Sub-Bank, Phase 2,” Report for Bluhm Burton Engineering, April 2004.
94. Craig, K.J. & Kingsley, T.C., “Report on CFD Study of Air Chiller Mixing in Shaft Headgear and Sub-Bank, Phase 1,” Report for Bluhm Burton Engineering, March 2004.
95. Pretorius, C.A. & Craig, K.J., “Report on CFD Analysis of Gearbox in Stainless Steel Shell,” Report for Tank Manufacturers, June 2003.
96. Craig, K.J., “Report on CFD Analysis of Venturi,” Report for Clearwater Engineering, April 2003.
97. Craig, K.J. & Kingsley, T.C., “Report on Computational Modelling of Container Sloshing,” Report for BKS Advantech, February 2003.
98. Craig, K.J. & Haarhoff, L.J., “Report on CFD Modelling of Pressure Drop of Butterfly and Through-Conduit Valves,” Report for Zimmermann & Jansen, September 2002.
99. Craig, K.J. & Haarhoff, L.J., “Report on CFD Modelling of Lever Ponds Air Heater,” Report for IST Industrial, June 2002.
100. Craig, K.J., de Kock, D.J. & Makgata, K.W., “Report on Unsteady Analysis of Inlet Flow of High-Performance Spark-Ignition Engine – Phase 1,” Report for Toyota, April 2002.
101. Craig, K.J. & Pretorius, R., “Report on Investigation of Prilling Tower Fluid Dynamic Behaviour,” Report for African Explosives Limited, July 2000.
102. Craig, K.J. & Venter, P.J., “Report on Computational Investigation into Supersonic Rotating Disk,” Report for Pan Mixers South Africa, February 2000.
103. Craig, K.J. & Venter, P.J., “Report on Analysis and Optimisation of Water Meter – Phases 1 to 6,” Reports for Teqnovo, 1998-1999.
104. Craig, K.J. & de Kock, D.J., “Report on Computational Investigation into Flow Phenomena in Touring Car Engine Trumpet and Intake,” Report for Toyota, August-September 1998.

6.7 Popular Articles

1. Venter P.J., Craig K.J., Hasse G.W., De Kock D.J. and Ackerman J., "Comparison Of Water Model and CFD Results for a Single-Strand Continuous Caster", Mechanical Technology, April 2000.

7 OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

7.1 Participation in conferences, workshops and short courses - specify type of contribution

7.1.1 National

1. Reviewer of 3 papers for SASEC2021, Stellenbosch, 11-13 Aug 2021.
2. On International Advisory and Review Committee for 6th Southern African Solar Energy Conference (SASEC2019), East London, 25-27 Nov 2019.
3. On International Advisory and Review Committee for 5th Southern African Solar Energy Conference (SASEC2018), Durban, 25-27 June 2018.
4. Session chair at 5th Southern African Solar Energy Conference (SASEC2018), Durban, 25-27 June 2018.
5. Session chair at 4th Southern African Solar Energy Conference (SASEC2016), Stellenbosch, 31 Oct -2 Nov 2016.
6. Reviewer of 3 papers for 4th Southern African Solar Energy Conference (SASEC2016), Stellenbosch, 31 Oct -2 Nov 2016.
7. Reviewer of 2 papers for 3rd Southern African Solar Energy Conference (SASEC2015), Kruger Park, 11-13 May 2015.
8. On International Advisory Committee and Conference Organising Committee for 3rd Southern African Solar Energy Conference (SASEC2015), Skukuza, 11-13 May 2015.
9. Reviewer of 6 papers for 2nd Southern African Solar Energy Conference (SASEC2014), Port Elizabeth, 27-29 January 2014.
10. Session chair ICMOSPS07, January 2007, Durban.
11. *SACAM06, 5th South African Conference on Applied Mechanics*, Cape Town, 16-18 January 2006, session chairman.
12. *SACAM04, 4th South African Conference on Applied Mechanics*, Johannesburg, 18-21 January 2004 (co-chair of conference).
13. *2nd South African Conference on Applied Mechanics '98*, University of Cape Town, Rondebosch, South Africa, January 13-15, 1998 (on local organising committee).
14. *SACAM2000, International Conference on Applied Mechanics*, Durban, 11-13 January 2000 (on local organising committee).
15. *International Workshop on Multidisciplinary Design Optimization*, Pretoria, 7-10 August 2000 (co-organiser of workshop and co-editor of proceedings)
16. Short course: *Practical Mathematical Optimization for Engineers and Scientists*. Presented 4 times in collaboration with Prof. Jan Snyman.
17. NACA '96, *Clean Air and Environment: Responsible Empowerment and Technology*, Badplaas, 20-22 November 1996.
18. *1st South African Conference on Applied Mechanics '96*, Midrand, South Africa, July 1-5, 1996 (on local organizing committee and editor of proceedings).

7.1.2 International

1. Reviewer of 4 papers for HEFAT2019, Wicklow, Ireland, 22-24 July 2019.
2. Reviewer of abstracts for SolarPACES 2018 conference, Casablanca, Morocco, Oct 2018.
3. Reviewer of 1 paper for IHTC-16, Beijing, China, Aug 2018.
4. Reviewer of 8 abstracts for SolarPACES 2017 conference, Santiago, Chile, Sep 2017.
5. Reviewer of 9 abstracts and 3 papers for SolarPACES 2016 conference, Abu Dhabi, 11-14 Oct 2016.
6. Member of Scientific Committee, SolarPACES 2016 conference, Abu Dhabi, 11-14 Oct 2016.
7. Reviewer of 3 papers for SolarPACES 2015 conference, 13-16 Oct 2015.
8. Reviewer of 3 papers for SolarPACES 2013 conference, 17-20 Sept 2013.
9. Session chair at 6th World Congress on Multidisciplinary Design Optimization, Rio de Janiero, 30 May – 3 June 2005.

10. Reviewer of submitted papers for 4th International Symposium on Computational Technologies for Fluid/Thermal/Chemical Systems with Industrial Applications, ASME Pressure Vessels and Piping Division Conference, August 4-8, 2002, Vancouver, Canada.
11. Invited to be session chair at 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Albany, NY, 30 August – 1 September, 2004.
12. Reviewer of 2 submitted papers for INFACON X 2004.
13. Reviewer of 3 submitted papers for ASME DETC2004/DAC.
14. Reviewer of 1 paper for 3rd Int Symp for Two-Phase Flow Modelling and Experimentation, Pisa, 22-24 Sept 2004.

7.2 Teamwork and collaboration with others:

1. Collaboration with Paul Gauché, currently, VP R&D Heliogen, formerly Manager: Concentrating Solar Technologies Dept., Sandia National Laboratories, NM, USA. Formerly Director – Solar Thermal Energy Research Group (STERG), University of Stellenbosch,
2. Collaboration with Mike Nieuwoudt, PrEng on Design for 4th year students.
3. Collaboration with Dr Nielen Stander, Livermore Software Technology Corp (LSTC), Livermore, CA, USA. Spent sabbaticals of 7 months in 2001 and 6 months in 2005 at LSTC.
4. Collaboration with Prof. Brian Thomas, University of Illinois at Urbana-Champaign. Visits and use as external examiner.
5. Collaboration with Dr Heinrich Badenhorst, University of Manchester, on solar energy applications using carbon nanoparticles.
6. Collaboration with Prof Prash Valluri, University of Edinburgh, through the THERMASMART project, as co-supervisor of Masters students (2020-)
7. Collaboration with Prof Theo von Backstrőm, Stellenbosch University: co-supervision of masters student (2018-2021).

7.3 Membership in national and international bodies

1. Senior member of the American Institute for Aeronautics and Astronautics (AIAA) (1988-2007).
2. Member of South African Institute for Mechanical Engineers (SAIMechE) (1986-2009).
3. Member of the International Society of Structural and Multidisciplinary Optimization (ISSMO).
4. Vice-President of South African Association for Theoretical and Applied Mechanics (SAAM) 2004-2007.
5. Vice-President of SA National Committee for IUTAM (International Union of Theoretical and Applied Mechanics) 2004-2007.
6. Member of International Solar Energy Society (ISES) (2021-)

8 MANAGEMENT AND ADMINISTRATIVE DUTIES

8.1 List your involvement in departmental activities (e.g. administrative functions), faculty (e.g. faculty committees) or other university activities.

1. Teaching and Learning committee member for Mechanical Engineering (2021 - present).
2. Departmental Management committee member for undergraduate teaching (2012 - present).
3. Section head of Thermofluids group (with 5 academic and 1 support staff members) in Department of Mechanical and Aeronautical Engineering (August 2003 to June 2007).
4. Acting section head of Thermofluids group (with 7 academic staff members) in Department of Mechanical and Aeronautical Engineering (July 2002 to July 2003).
5. In charge of preparation of documentation for 2002, 2017 ECSA accreditation visits for Department of Mechanical and Aeronautical Engineering.
6. Group leader of Computational Fluid Dynamics Laboratory (cfdlab) (1997- 2005).
7. Chair of Faculty of Engineering Teaching Committee (1996-2000).

9 COMMUNITY SERVICE OR PROFESSIONAL SKILLS

9.1 Involvement with other universities/scientific institutions

External examiner for undergraduate subjects from Stellenbosch University, University of Cape Town and WITS (2018-).
External examiner for postgraduate subject from Stellenbosch University (2018-).
External examiner for Master theses for Stellenbosch University, North-West University, University of Johannesburg, University of Cape Town and Wits Technikon (MTech).
External examiner for PhD from Stellenbosch University, South Africa (2017)
External examiner for PhD from University of Cape Town, South Africa (2017).
External examiner for PhDs from Australian National University, Canberra, Australia (2017, 2021).
External examiner for PhD from University of Adelaide, Australia (2017).
Co-supervisor of Masters student, Stellenbosch University (2019-2020).

9.2 Referee duties

Regular reviewer for international journals:
Before 2010:
Journal for Numerical Methods in Fluids
International Journal for Numerical Methods in Heat and Fluid Flow
Building and Environment
International Journal for Numerical Methods in Engineering
ASME Transactions Journal of Mechanical Design
IEEE SMCB
Computers and Structures
Structural and Multidisciplinary Optimization
Since 2013:
Solar Energy
Applied Energy
Applied Thermal Engineering
Chemical Engineering Journal
Critical Reviews in Environmental Science and Technology
Water Research
Biochemical Engineering Journal
Structural and Multidisciplinary Optimization
Computers and Structures
International Journal of Sustainable Energy
International Journal of Energy research
Chemical Engineering Communications
ASME Journal of Solar Energy Engineering
Energy
Applied Mathematical Modelling
Journal of Power and Energy
International Journal of Chemical Reactor Engineering
Renewable Energy
Sustainable Energy Technologies and Assessments
International Journal of Heat and Mass Transfer
International Journal of Vehicle Design
Journal of Rail and Rapid Transit
Thermal Science and Engineering Progress
International Journal of Heat and Mass Transfer
Materials & Design

9.3 Panel duties

1. Served on review and evaluation panel for scholarship and fellowships applications for NRF RRES (Renewable and Sustainable Energy Scholarships) – October 2014

2. Served as Reference Group Meeting member for Water Research Council project: Solar Energy for Desalination and Water Purification, September 2015 - 2017.

10 AWARDS AND SCIENTIFIC/SCHOLARLY RECOGNITION

10.1 Evaluation status as scientist/scholar

(e.g. NRF; first evaluation and date, subsequent evaluations and dates

1. Rated as C3-researcher by the South African National Research Foundation, July 2000.
2. Rated as C1-researcher by the South African National Research Foundation, October 2005.
3. Rated as C2-researcher by the South African National Research Foundation, October 2017.

10.2 Research awards and prizes

1. 1982-1985: AECI bursary for undergraduate study in Mechanical Engineering
2. 1986, 1987: Laboratory for Advanced Engineering (LGI) fellowship for Masters study in Mechanical Engineering
3. 1988, 1989, 1990: LGI bursary and Foundation for Research Development Special Merit Doctoral Bursary to study for PhD in Aeronautical Engineering at Stanford University, CA, USA.
4. 1991: Research Assistantship in the Aeronautics & Astronautics department at Stanford University

11 PERSONAL INTERESTS

From an early age, Ken excelled in music, especially as a viola player. He reached the final round of the 1983 SASOL Music competition in Stellenbosch, South Africa, and was principal violist of the South African National Youth Orchestra (1980-1986), University of Pretoria Symphony Orchestra (1982-1986), Harmonia Juventia string orchestra, Pro Musica orchestra, Stanford University Symphony Orchestra (1989-1992) and the Stanford University Chamber Orchestra (1989-1992). He currently performs as principal violist in the Gauteng Philharmonic Orchestra (GPO) (since 2014).

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