

CURRICULUM VITAE: DR MORRIS DE BEER
24-03-2020

1. Family name:	DE BEER	
2. First name:	MORRIS	
3. Date of birth:	18 March 1955	
4. Nationality:	SOUTH AFRICAN	
5. ID Number	5503185115084	
6. Education		
Date	Degree(s) or Diploma(s) obtained	Name of University/Institution
1981	B.Eng (Civil)	University of Pretoria (UP)
1982	B.Eng (Hons) (Civil) <i>Cum Laude</i>	University of Pretoria (UP)
1986	M.Eng (Civil) <i>Cum Laude</i>	University of Pretoria (UP)
1990	Ph.D (Civil Engineering)	University of Pretoria (UP)

7. Membership of professional bodies	Name	Role in professional bodies (member, committee member, chairperson of workgroup etc.)
ECSA	Engineering Council of South Africa	Registered Professional Engineer (No. 850445). Since 1985.
SAASA	South African Academy for Arts and Sciences.	Member (No. 168) since 2009.
SAT	Society for Asphalt Technology.	Member since 1994 (Ref. DEBM)
RMPD	<i>International Journal of Road Materials and Pavement Design.</i>	Inaugural Member (1999), Associated Editor, Tutor and Reviewer of RMPD draft and final manuscripts.
ISWIM	International Society of Weigh In Motion (WIM).	Society Member (166) since 2012. Attending meetings, when available (e.g. @ TRB 2015).
ICWIM	International Conferences on WIM.	Scientific Committee member since inception in 2007. Reviews of Abstracts and Papers every 4 to 4 years. Next ICWIM8 in 2019.
SAICE	The South African Institution of Civil Engineering	Member (No, 12042) since 1985.
HVSIA	The Heavy Vehicle Simulator (HVS) International Alliance.	Inaugural member and voluntary association with Heavy Vehicle Simulator users (Since 2002).
TRB Committee: AFD40	Full-Scale Accelerated Pavement Testing - Standing Committee or Task Force	Voluntary.
RPF	Road Pavements Forum, South Africa.	Voluntary member (CSIR).
RILEM	International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM in French)	2017 Senior Membership (Ref. 2031) Cotisation 2018, Membre Effectif, including the on line

		version of the Journal Materials and Structures (M&S).
NRF	National Research Foundation (NRF)	Registered on NEXUS database (DSpace)
8. Years of research experience - Date range	Name of research project/study	Client
1983 to 1992	Research in strength and durability of Road Building Materials, and Road Pavement Design, including advanced Road Pavement Analysis and interpretation. Accelerated Pavement Testing (APT). This included road pavements incorporating cementitious base and Subbase layers and structural/rehabilitation design guidelines, pavements with recycled layers.	National Department of Transport (NDoT); All provinces, especially KZN and Gautrans;
1996 to 1997	Establishment of a rehabilitation guideline for major roads in South Africa based on behavioural mechanisms of layered pavement systems under loading both in dry and wet conditions	National Department of Transport (NDoT);
1995 to 1998	Improved transfer function for cementitious subbase layers in semi-flexible pavements;	National Department of Transport (NDoT);
1987 to 1988	Development of a laboratory Erosion Tester (ET) for the testing of traffic associated erosion of stabilised materials, and setting design criteria;	National Department of Transport (NDoT);
1988 to 2013	Establishment of the new failure phenomenon referred to as "Crushing failure" of cementitious base layers of light pavements;	National Department of Transport (NDoT); RMPD Article;
1990 to 2017	Development of Dynamic Cone Penetrometer (DCP) technology and associated balance curves, including calibration for structural capacity of pavements incorporating stabilised layers. Associated DCP Software.	Gautrans, NDoT, Africa Community Access Partnership (ReCAP, AFCAP).
1991 to 2018	Vehicle Road Interaction (VRI), specifically development of an innovative Stress-In-Motion (SIM) device and associated technology for road pavement design.	Int'l and national Road Pavement Design Industry. NDoT, CSIR (PG)
2008 to 2013	PB/2006/A-1: TYRE LOADING AND CONTACT STRESS INFORMATION SYSTEM (CSIS)	SANRAL

2014 to 2016	Certification of traffic Weigh In Motion Devices and data accuracy.	Agreement, South Africa.
List of research publications and academic peer reviewed articles		
9. Name of Journal/research publication		
Tyre technology INTERNATIONAL 2011 Annual Review, Magazine, UK.	De Beer, M., Maina, J.W., (2011). Using Tyre-Road Contact Stresses in Road Pavement Design and Analysis, article published in: Tyre technology INTERNATIONAL 2011 Annual Review, UK. http://viewer.zmags.com/publication/54f87b66#/54f87b66/76	2011
10 th CAPSA	Theyse, H. L., De Beer, M, Maina, J. W., Kannemeyer L., (2011). Interim Revision of the South African Mechanistic-Empirical Pavement Design Method for Flexible Pavements. Focus Area 4: Flexible Pavements systems for Extended Life, 10th Conference on Asphalt Pavements for Southern Africa (10th CAPSA); September 11 to 14, 2011, Champagne Sports Resort, KwaZulu-Natal, South Africa. CSIR Report: CSIR/BE/IE/EXP/2011/0059/A, GWDMS, Pta General, Document Number 210352.	2011
ICWIM6 paper	De Beer, M., Sallie I., (2012). An Appraisal of Mass Differences between Individual Tyres, Axles and Axle Groups of a Selection of Heavy Vehicles in South Africa. International Conference on Weigh-In-Motion: ICWIM6 (organized with NATMEC 2012), Dallas, Texas June 4 - 7, 2012 Proceedings of the 6th International Conference on Weigh-In-Motion (ICWIM 6), Edited by Bernard Jacob, Anne-Marie McDonnell and Franziska Schmidt, Wiley Cunagin, ISTE (UK), Wiley (USA). ISBN: 978-1-84821-415-6.	2012
Tire Science Conference, Ohio, USA	De Beer, M., Maina, J., W., van Rensburg, Y., Greben, J., M., (2012) Toward Using Tire-Road Contact Stresses in Pavement Design and Analysis. Tire Science and Technology: October-December 2012, Vol. 40, No. 4, pp. 246-271. http://tiresciencetechnology.org/doi/abs/10.2346/tire.12.400403 .	2012

RMPD In'l journal paper	De Beer M and Litwinowicz A (2012). Long Term Crushing Performance of Lightly Cementitious Pavement Materials – Update to the South African Procedure. Submitted Feb 2, 2012 for review & publication in Int'l journal of Road Materials and Pavement Design (RMPD) – see http://www.tandf.co.uk/journals/TRMP .	2012
SAICE journal	Netterberg, F & De Beer, M (2012). Weak interlayers in flexible and semi-flexible road pavements – Part I. Journal of the South African Institution of Civil Engineering, Vol 54 No 1, April 2012, Pages 32–42, Paper 762-1.	2012
SAICE journal	De Beer M, Maina J W & Netterberg, F (2012). Mechanistic modelling of weak interlayers in flexible and semi-flexible road pavements – Part 2. Journal of the South African Institution of Civil Engineering, Volume 54 Number 1 April 2012, pp43-54.	2012
Measurement: <i>Int'l</i> journal	De Beer, M., Fisher, C., (2013). Stress-In-Motion (SIM) system for capturing tri-axial tyre-road interaction in the contact patch, Measurement, Volume 46, Issue 7, August 2013, Pages 2155-2173, ISSN0263-2241, http://dx.doi.org/10.1016/j.measurement.2013.03.012 . (http://www.sciencedirect.com/science/article/pii/S0263224113000791).	2013
SATC_2013	J. W. Maina, M. De Beer, Y. van Rensburg. (2013). Modeling Tyre-Road Contact Stresses in Pavement Design and Analysis. South African Transportation Conference (SATC 2013), The 32 nd Annual Southern African Transport Conference And Exhibition Theme Transport and Sustainable Infrastructure Session 2B – Infrastructure, CSIR International Convention Centre (CSIR ICC), Pretoria, South Africa.	2013
Airfield and Highway Pavement 2013, ASCE	Hernandez, J., Al-Qadi, I., and De Beer, M. (2013). Impact of Tire Loading and Tire Pressure on Measured 3D Contact Stresses. Airfield and Highway Pavement 2013: pp. 551-560. doi: 10.1061/9780784413005.044.	2013
SATC 2014	SATC 2014: De Beer, M., van Rensburg, Y. and Komba, J. (2014). Crushing Damage Estimation for Pavements with Lightly Cementitious Bases. SATC 2014;	2014
CAPSA 2015	De Beer, M., van Rensburg, Y., (2015). Pavement damaging effects from dual tyre configurations of heavy vehicles with tyre inflation pressure differentials. 11th Conference on Asphalt Pavements for Southern Africa, 2015 (CAPSA 2015), Focus Area: FA1 - Innovative structural design procedures, Chapter 10, 16 to 19 August 2015, Sun City, South Africa.	2015

APT_2016, Costa Rica.	APT Conference - September 2016_Costa Rica Paper: "Towards Understanding Tyre-Pavement Contact in APT Research on Flexible Pavements" by Morris De Beer and Colin Fisher, CSIR, Built Environment.	2016	
ARRB/SURF_2018 Paper	Morris De Beer, James W Maina, Y van Rensburg and C Fisher (2018): "Mechanistic design optimization of thin asphalt surfacings using measured non-uniform tyre-road contact incorporating rectangular contact shapes and layer cross-anisotropy". 8th Symposium on Pavement Surface Characteristics (SURF 2018) – Vehicle to Road Connectivity - Technical Session 4.2, Room P11, Vehicle Road Interaction, SURF 2018, Brisbane, Queensland, 2018	2018	
Research Projects			
Year	Theme/Research area/Topic	Client	
1982 to 1983	Heavy Vehicle Simulator (HVS) research on "light" granular base pavements in the Cape Province, MR 18.	NDoT, WC	
10. 1983 to 1984	Asphalt base and Cementitious (stabilized) Sub-base structures in Natal (Pavements include: N3/6 Van Reenen's Pass; N3/1 Mariannhill; N2/24 South Coast; (Research on these pavements led to an MEng degree from the University of Pretoria in 1986).	NDoT	Annual ZAR Value
1985 to 1991	Cementitious base and/or subbase structures in Transvaal. (Roads 1932 near Rooiwal and Road 2212 near Bultfontein). (Research on these pavements led to a PhD degree at the University of Pretoria in 1990).	Gautrans	~ 0.2m
2008 to 2013	Capturing and Idealization of tyre-road pavement contact stresses (3D) – Advancement of knowledge and application in road pavement design.	SANRAL	> 2m
1999 to 2018	Editorial Works: Road Materials and Pavement Design (RMPD) <i>Int'l journal</i> : Associated Editor, Tutor, Reviewer. Inaugural member.	Global Road Materials and Pavement Design community.	> 3m
1991 to 2018	Vehicle Road Interaction (VRI), specifically development of several versions (6) of an innovative Stress-In-Motion (SIM) devices and associated tyre database and technology for road pavement design.	CSIR Assets	> 1m

			>10m
H Index	SCORE		
11.			18

12. Guidelines & Manuals		
TRH 4 (1996)	Chairman of Committee for updating TRH 4 (1987).	1995/6.
TRH 11	Assisting with updating TRH 11, Abnormal Loading Guidelines.	2008.
Red Book	Chapter I: Updating chapter on Transportation and roads.	2017/18.