

# UNIVERSITY OF PRETORIA

## CURRICULUM VITAE – Mr Carl Martin Becker

(Updated 2 November 2015)

### 1. BIOGRAPHICAL SKETCH

1.1 GENERAL INFORMATION											
<b>Surname</b>	Becker										
<b>First names</b>	Carl Martin			<b>ID Number</b>			8208075026089				
<b>Citizenship</b>	RSA			<b>Title</b>		Mr	<b>Female</b>		<input type="checkbox"/>	<b>Male</b>	<input checked="" type="checkbox"/>
<b>Place of birth</b>	Roodepoort, South Africa			<b>Date of birth</b>			7 Augustus 1982				
<b>Population group</b>	<b>African</b>	<input type="checkbox"/>	<b>Coloured</b>	<input type="checkbox"/>	<b>Indian</b>	<input type="checkbox"/>	<b>White</b>	<input checked="" type="checkbox"/>	<b>Other</b> <i>(Please specify)</i>		
<b>Department</b>	Mechanical and Aeronautical Engineering			<b>Position</b>			Researcher				
<b>Direct Telephone</b>	012-420-2928			<b>Direct Telefax</b>							
<b>E-mail</b>	carl.becker@up.ac.za										
<b>Date of appointment</b>	01/04/2010			<b>Permanent full-time</b>			<input checked="" type="checkbox"/>	<b>Temporary full-time</b>		<input type="checkbox"/>	

1.2 ACADEMIC QUALIFICATIONS OBTAINED				
Degree/ Diploma	Field of study	Higher education institution	Year	Distinctions
M.Eng	Mechanical Engineering	University of Pretoria	2008	Cum Laude
B.Eng Honors	Mechanical Engineering	University of Pretoria	2006	Cum Laude
B.Eng	Mechanical Engineering	University of Pretoria	2005	1 <sup>st</sup> class

<b>1.3 WORK EXPERIENCE TO DATE</b>		
<b>Name of employer</b>	<b>Capacity and/or type of work</b>	<b>Period From (mm//yy to mm//yy)</b>
University of Pretoria	Researcher	04/10 to present
Land Mobility Technologies	Test Engineer	03/08 to 03/10

## 7. RESEARCH OUTPUTS

### 7.1 Publications in peer-reviewed or refereed journals

#### Publications published in peer-reviewed or refereed journals:

1. Stallmann, M.J., Els, P.S. and Becker, C.M., 2014, Parameterization and Modelling of Large Off-Road Tyres for Ride Analyses: Part 1 - Obtaining Parameterization Data, Journal of Terramechanics, Vol 55, pp. 73-84.
2. Becker, C.M. and Els, P.S., 2014, Profiling of rough terrain, International Journal of Vehicle Design, Vol. 64, Nos. 2/3/4, pp. 240-261.

### 7.3 Published full-length conference papers/keynote addresses

#### International conferences of high standing

1. Becker, C.M., and Els, P.S., The applicability of the friction circle concept to off-road tyres, 13th ISTVS European Conference, 21-23 Oct 2015, Rome, Italy.
2. Els, P.S., Botha, T.R., Hamersma, H.A., Becker, C.M., Savitski, D., Heidrich, L. and Höpping, K., The Effect of Controllable Suspension Settings On the ABS Braking Performance of An Off-Road Vehicle On Rough Terrain, ISTVS 7th Americas Regional Conference, 4-7 Nov 2013, Tampa, Florida
3. Becker, C.M. and Els, P.S., 2012, Wheel Force Transducer Measurements on a Vehicle in Transit, Proceedings of the 12<sup>th</sup> European Regional Conference of the ISTVS, Pretoria, South Africa, 24 to 28 September 2012 (peer reviewed)
4. Botha, T.R., Els, P.S. and Becker, C.M., 2012, Measuring Tyre Contact Patch Deformation using Stereography, Proceedings of the 12<sup>th</sup> European Regional Conference of the ISTVS, Pretoria, South Africa, 24 to 28 September 2012 (peer reviewed).
5. Els, P.S. and Becker, C.M., 2011, Characterisation of off-road tyres, Proceedings of the 17<sup>th</sup> International Conference of the ISTVS, Blacksburg, USA, 18 to 22 September 2011 (peer reviewed)

reviewed).

6. Becker, C.M. and Els, P.S., 2011, Modal analysis on a large off-road tyre using Scanning Laser Vibrometry, Proceedings of the 17<sup>th</sup> International Conference of the ISTVS, Blacksburg, USA, 18 to 22 September 2011 (peer reviewed).
7. Becker, C.M. and Els, P.S., 2010, Profiling of Rough Terrain, Proceedings of the Joint 9th Asia-Pacific ISTVS Conference and Annual Meeting of the Japanese Society for Terramechanics, 27 to 30 September 2010, Sapporo, Japan.
8. Els, P.S. and Becker, C.M., 2010, Characterisation and Modelling of Off-road Tyres, Proceedings of the Joint 9th Asia-Pacific ISTVS Conference and Annual Meeting of the Japanese Society for Terramechanics, 27 to 30 September 2010, Sapporo, Japan.
9. Els, P.S. and Becker, C.M., Profiling of rough terrain, 2009, Proceedings of the 11<sup>th</sup> European Regional Conference of the International Society for Terrain Vehicle Systems (ISTVS), 5 to 8 October 2009, Bremen, Germany.

## 8. OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

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

*Provide full details of participation in national and international conferences etc*

#### 8.1.2 International

1. Presented a paper at the 13th ISTVS European Conference, Rome, Italy, 21-23 October 2015.
2. Presented two papers at the 12<sup>th</sup> European Regional Conference of the ISTVS, Pretoria, South Africa, 24 to 28 September 2012.
3. Presented two papers at the 17<sup>th</sup> International Conference of the ISTVS, Blacksburg, USA, 18 to 22 September 2011.
4. Presented two papers at the Joint 9th Asia-Pacific ISTVS Conference and Annual Meeting of the Japanese Society for Terramechanics, 27 to 30 September 2010, Sapporo, Japan.

### 8.2 Teamwork and collaboration with others:

*Other researchers (national and international)*

1. Prof. Valentin Ivanov, Ilmenau University of Technology, Germany
2. Dr. Barys Shyrokau at Delft University of Technology, The Netherlands
3. Dr. Sally Shoop - Cold Regions Research and Engineering Laboratory (CRREL) of the US Army

4. Prof. Corina Sandu – Virginia Polytechnic Institute and State University (Virginia Tech)

*Other research institutions (national and international)*

1. Cold Regions Research and Engineering Laboratory (CRREL) of the US Army ERDC
2. Geotechnical and Structures Laboratory (GSL) of the US Army ERDC
3. Ilmenau University of Technology, Germany
4. Cosin (Developers of F-Tire), Esslingen, Germany
5. Virginia Polytechnic Institute and State University (Virginia Tech)
6. CSIR DPSS on vehicle mobility
7. ARMSCOR on wheeled vehicle mobility

*Industry*

1. Deere and Company
2. DCD Rolling Stock
3. Transnet
4. Bell equipment
5. VR Steel
6. Gerotek
7. Arm Scor
8. CSIR DPSS
9. ESTEQ Engineering

### **8.3 Membership in national and international bodies**

1. American Society of Mechanical Engineers (ASME): Member (2012 to present)
2. International Society for Terrain Vehicle Systems (ISTVS):  
Member 2012 to present
3. SAE International:  
Member (2008 to present)

### **8.4 Visits to local and overseas universities or research institutes as guest professor or researcher**

1. Collaborative research with Prof Valentin Ivanov at Ilmenau University of Technology, Germany, 2015 (6 weeks)
2. Collaborative research with Dr. Barys Shyrokau at Delft University of Technology, The Netherlands, 2015 (4 weeks)
3. Collaborative research with Prof Valentin Ivanov at Ilmenau University of Technology, Germany, 2013 (2 weeks)
4. Collaborative research with Prof C Sandu at Virginia Polytechnic Institute and State University, 2011 (2 weeks)

## **10. MANAGEMENT AND ADMINISTRATIVE DUTIES**

*Departmental activities*

1. Vehicle Dynamics Group (VDG) Researcher (2011 to present)
2. Baja SAE Faculty Advisor for the International event in El Paso, Texas, USA (2014)
3. Baja SAE Faculty Advisor for the International event in Portland, Oregon, USA (2012)

## 11. COMMUNITY SERVICE OR PROFESSIONAL SKILLS

### 11.1 Outreach projects

*SASOL Mini Baja competition – Involves Mechanical Engineering students from Universities and Universities of Technology in South Africa, as well as international competitors from the USA, India, Iran and Botswana, Russia, Turkey.*

### 11.4 Involvement with other universities/scientific institutions

1. Collaborative research with Ilmenau University of Technology, 2011-present
2. Collaborative research with Delft University of Technology, 2015
3. Collaborative research with Virginia Polytechnic Institute and State University, 2011-present.

### 11.5 Referee duties

- 1) Refereed 15 papers for Journal of Terramechanics
- 2) Refereed 1 paper for the South African Journal of Industrial Engineering