

# CURRICULUM VITAE <sup>1</sup>

## (Shortened Version)

### Personal Details

**Surname:** LABUSCHAGNE  
**First Names :** Coenraad Christoffel Andries  
**Current Position :** Associate Professor  
**Address :** School of Computational and Applied Mathematics,  
University of the Witwatersrand, Johannesburg,  
Private Bag 3, Wits 2050, South Africa  
**Email Address :** Coenraad.Labuschagne@wits.ac.za  
**Citizenship :** South African

### Academic Qualifications

- D.Sc. (Mathematics), Potchefstroom University for CHE, Potchefstroom, 1986.  
Title of thesis: *The Riesz tensor product of Archimedean Riesz spaces*.  
Thesis advisor: Prof. Dr. J.J. Grobler.
- M.Sc. (Mathematics) (with distinction), Potchefstroom University for CHE, Potchefstroom, 1982.
- B.Sc. Hons. (Mathematics) (with distinction), Rand Afrikaans University, Johannesburg, 1980.
- B.Sc. (with distinction), Majoring in Mathematics and Theoretical Physics, Rand Afrikaans University, Johannesburg, 1979.

### Academic Appointments

- The Standard Bank Associate Professor in Advanced Mathematics of Finance, School of Computational and Applied Mathematics, University of the Witwatersrand, Johannesburg, 1 September 2009 – present.
- The Standard Bank Senior Lecturer in Advanced Mathematics of Finance, School of Computational and Applied Mathematics, University of the Witwatersrand, Johannesburg, 1 July 2008 – 31 August 2009.

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<sup>1</sup>Updated : 20 September 2009

- Associate Professor, School of Mathematics, University of the Witwatersrand, Johannesburg, 1 April 2006 – 30 June 2008.
- Senior Lecturer, School of Mathematics, University of the Witwatersrand, Johannesburg, 1 January 1991 – 31 March 2006.
- Lecturer, School of Mathematics, University of the Witwatersrand, Johannesburg, 1 January 1986 – 31 December 1990.

## Courses Taught

<b>Masters</b>	Banach Algebras Banach Lattices $C^*$ -Algebras Functional Analysis Operator Theory Riesz Spaces Stochastic Processes Topological Vector Spaces Mathematical Topics for Engineering Management
<b>Honours</b>	Applications of Stochastic Processes Complex Analysis Functional Analysis Mathematical Economics Measure and Integration Theory Operator Theory Set Theory Swaps and Exotic Options Topology
<b>Third Year</b>	Mathematical Economics Metric Spaces Real Analysis Topology
<b>Second Year</b>	Algebra Techniques Basic Analysis Differential Equations Discrete Mathematics Graph Theory Intermediate Analysis Multivariable Calculus Second Year Engineering Algebra Second Year Engineering Calculus
<b>First Year</b>	Algebra Calculus First Year Engineering Algebra First Year Engineering Calculus

## Supervision of Higher Degrees

### Ph.D. (New Students)

- LISA BONNEY, Studies to commence February 2010.
- THERESA OFFWOOD, Studies to commence February 2010.

### Ph.D. (In Progress)

- ANDREW PINCHUCK, *Applications of near vector spaces and fuzzy set theory in functional analysis*.

### Ph.D. (Completed)

- STUART CULLENDER, *Generalized martingale and stopping time techniques in Banach spaces*, Ph.D., University of the Witwatersrand, 2007.
- WEN-CHI KUO, *Stochastic processes on vector lattices*, Ph.D., University of the Witwatersrand, 2006.

### M.Sc. (In Progress)

- LISA BONNEY, *Stochastic portfolio theory and its applications to equity markets*.
- THERESA OFFWOOD, *No free lunch in Orlicz spaces*.

### M.Sc. (Completed)

- MOKHWETHA MABULA, *A vector lattice approach to Rådström's embedding theorem*, M.Sc., University of the Witwatersrand, 2009.
- PETER HAWKE, *Markov operators on Banach lattices*, M.Sc. (with distinction), University of the Witwatersrand, 2006.
- MARK FITZ, *Martingales on Riesz spaces and Banach lattices*, M.Sc., University of the Witwatersrand, 2005.
- STUART CULLENDER, *Properties of generalized vector-valued  $L^p$ -spaces*, M.Sc. (with distinction), University of the Witwatersrand, 2004.
  - Recipient of the  $S_2A_3$  Bronze Medal for the most outstanding Master of Science Dissertation in the Faculty of Science in 2004.
- RAJENDRA KALAICHELVAN, *Characterization of operator spaces*, M.Sc., University of the Witwatersrand, 1993.
- MARK BRODIE, *Tensor products of  $C^*$ -algebras*, M.Sc. (with distinction), University of the Witwatersrand, 1990.

- ASWIN KALAIN, *Properties of  $f$ -algebras*, M.Sc. (with distinction), University of the Witwatersrand, 1988.
- NICHOLAS DAVIES, *Irreducible operators on Riesz spaces*, M.Sc. (with distinction), University of the Witwatersrand, 1987.

## Co-supervision of Higher Degrees

### Ph.D. (In Progress)

- PRIYANKA PARBHOO, *Information and filtration modelling*.  
*Supervisor:* Andrea Macrina (King's College, London, UK),  
*Co-Supervisor:* C.C.A. Labuschagne.

### M.Sc. (In Progress)

- UR KOUMBA, *Risk measures via vector lattice theory*.  
*Supervisor:* C.C.A. Labuschagne,  
*Co-supervisor:* Olivier Menoukeu Pamen.
- SLAVICA LAZIC, *Copulas in credit derivatives*.  
*Supervisor:* C.C.A. Labuschagne,  
*Co-supervisor:* Diane Wilcox.
- TSHIKHUDO LUKOTO, *The fundamental theorems of asset pricing*.  
*Supervisor:* C.C.A. Labuschagne,  
*Co-supervisor:* Olivier Menoukeu Pamen.
- RICHARD MCINTYRE, *Crack formation and propagation in artificial materials*.  
*Supervisor:* John Napier,  
*Co-supervisor:* C.C.A. Labuschagne.

### Honours Projects (In Progress)

- STORM COLLINS, *Low dimensional BGM model*.  
*Supervisor:* Roelof Sheppard (Standard Bank),  
*Co-supervisor:* C.C.A. Labuschagne.
- JACQUELINE DA SILVA, *Modelling of financial time series by Lévy processes*.  
*Supervisor:* Fatima Vawda (27Four),  
*Co-supervisor:* C.C.A. Labuschagne.
- WARRICK POKLEWSKI-KOZIELL, *Convergence of Monte Carlo Methods for the Heston Stochastic Volatility Model*.  
*Supervisor:* Shamim Afshani (Standard Bank),  
*Co-supervisor:* C.C.A. Labuschagne.
- HLONIPHANI TEMBE, *Exotic derivatives in a changing financial landscape*.  
*Supervisor:* Fatima Vawda (27Four),  
*Co-supervisor:* C.C.A. Labuschagne.

- GAVIN TRUTER, *SARB dynamics for the Libor market model: A review of the work of Morini and Mercurio*.  
*Supervisor:* Garith Botha (Standard Bank),  
*Co-supervisor:* C.C.A. Labuschagne.

### Honours Projects (Completed)

- DARRYN BRUCE, *Parameter estimation of mean reverting processes*. B.Sc. Honours, University of the Witwatersrand, 2008.  
*Supervisor:* Lulama Wakaba (Absa Bank),  
*Co-supervisor:* C.C.A. Labuschagne.
- AMIEL HOLILAL, *Historical swaption and caplet smile*. B.Sc. Honours, University of the Witwatersrand, 2008.  
*Supervisor:* Craig Anderson (Standard Bank),  
*Co-supervisor:* C.C.A. Labuschagne.
- MAILE NCHABELENG, *Analytic pricing of first-to-default baskets*. B.Sc. Honours, University of the Witwatersrand, 2008.  
*Supervisor:* Diresh Jewan (Rand Merchant Bank),  
*Co-supervisor:* C.C.A. Labuschagne.
- THERESA OFFWOOD, *The Anderson convertible bond model*. B.Sc. Honours (with distinction), University of the Witwatersrand, 2008.  
*Supervisor:* Marchand van Rooyen (Standard Bank),  
*Co-supervisor:* C.C.A. Labuschagne.
- AMEET SINGH, *Pricing American Options: A review and implementation of Monte Carlo methods*. B.Sc. Honours (with distinction), University of the Witwatersrand, 2008.  
*Supervisor:* Marchand van Rooyen (Standard Bank),  
*Co-supervisor:* C.C.A. Labuschagne.

### Publications

Authors listed alphabetically as is customary for publications in Mathematics and Mathematics of Finance.

### Book in Preparation

- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Stochastic processes in Riesz spaces.

### Papers Submitted for Publication

- C.C.A. LABUSCHAGNE, T.M. OFFWOOD, An extension of Sundaresan's description in Bochner spaces of the Radon-Nikodým property.
- C.C.A. LABUSCHAGNE, B.A. WATSON, Discrete stochastic integration in Riesz spaces.

### Papers Accepted for Publication

- C.C.A. LABUSCHAGNE, V. MARRAFFA, On set-valued cone absolutely summing maps, *Central European Journal of Mathematics*, in press.
- C.C.A. LABUSCHAGNE, V. MARRAFFA, Operator martingale decompositions and the Radon-Nikodým property in Banach spaces, *Journal of Mathematical Analysis and Applications*, in press.
- P.D. ALLENBY, C.C.A. LABUSCHAGNE, On the uniform density of  $C(X) \otimes C(Y)$  in  $C(X \times Y)$ , *Indagationes Mathematicae*, in press.

### Papers Published

- C.C.A. LABUSCHAGNE, A.L. PINCHUCK, Doob's decomposition of set-valued submartingales via ordered near vector spaces, *Quaestiones Mathematicae*, **32** (2009), 247–264.
- M. KOROSTENSKI, C.C.A. LABUSCHAGNE, B.A. WATSON, in press. Reverse martingales in Riesz spaces, *Proceedings of the 18th International Workshop on Operator Theory and Applications (IWOTA 2007): Operator Theory: Advances and Applications*, **195**, 213–230 (2009).
- C.C.A. LABUSCHAGNE, Positive parts of convergent fuzzy set-valued martingales, *International Journal of Automation and Control* (a special issue on “Intelligent Technologies: Recent Advances and Applications”), **2** (2008), 376–395.
- M. KOROSTENSKI, C.C.A. LABUSCHAGNE, A note on regular martingales in Riesz spaces, *Quaestiones Mathematicae*, **31** (2008), 219–224.
- C.C.A. LABUSCHAGNE, A Banach lattice approach to convergent integrably bounded set-valued martingales and their positive parts, *Journal of Mathematical Analysis and Applications*, **342** (2008), 780–797.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, Convergent martingales of operators and the Radon-Nikodým property in Banach spaces, *Proceedings of the American Mathematical Society*, **136** (2008), 3883–3893.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, A description of the space of Banach space-valued absolutely  $p$ -summable sequences, *Quaestiones Mathematicae*, **31** (2008), 101–105.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, Corrigendum to “Unconditional martingale difference sequences in Banach spaces” [J. Math. Anal. Appl. 326 (2007) 1291–1309], *Journal of Mathematical Analysis and Applications*, **338** (2008), 751–752.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Amarts in Riesz spaces, *Acta Mathematica Sinica (English Series)*, **24** (2008), 329–342.
- C.C.A. LABUSCHAGNE, C.J. VAN ALTEN, On the MacNeille completion of  $MTL$ -chains. *Proceedings of the 9th International Conference on Intelligent Technologies, InTech '08*, Assumption University, Bangkok, Thailand, 71–75 (2008).  
ISBN: 978-9-7461529-6-9.

- C.C.A. LABUSCHAGNE, A.L. PINCHUCK, C.J. VAN ALTEN, A vector lattice version of Rådström's embedding theorem, *Quaestiones Mathematicae*, **30** (2007), 285–308.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, Unconditional Schauder decompositions and stopping times in the Lebesgue-Bochner spaces, *Journal of Mathematical Analysis and Applications*, **336** (2007), 849–864.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, A note on the  $M$ -norm of Chaney-Schaefer, *Quaestiones Mathematicae*, **30** (2007), 151–158.
- C.C.A. LABUSCHAGNE, C.J. VAN ALTEN, On the variety of Riesz spaces, *Indagationes Mathematicae (New Series)*, **18** (2007), 61–68.
- C.C.A. LABUSCHAGNE, Preduals and nuclear operators associated with bounded,  $p$ -convex,  $p$ -concave and positive  $p$ -summing operators, *Canadian Journal of Mathematics*, **59** (2007), 614–637.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, Unconditional martingale difference sequences in Banach spaces, *Journal of Mathematical Analysis and Applications*, **326** (2007), 1291–1309.
- M. KOROSTENSKI, C.C.A. LABUSCHAGNE, Lax proper maps of locales, *Journal of Pure and Applied Algebra*, **208** (2007), 655–664.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Ergodic theory and the strong law of large numbers on Riesz spaces, *Journal of Mathematical Analysis and Applications*, **325** (2007), 422–437.
- C.C.A. LABUSCHAGNE, Join-semilattices of integrable set-valued martingales, The 8th International Conference on Fixed Point Theory and its Applications, Chiang Mai, Thailand, July 16–22, 2007. *Thai Journal of Mathematics*, **5** (2007), 53–69.
- C.C.A. LABUSCHAGNE, Positive parts of convergent fuzzy martingales, In: Q.P. Ha and N.M. Kwok (ed.), *Proceedings of the 8th International Conference on Intelligent Technologies, InTech '07*, Sydney, Australia, December 12–14, 2007. University of Technology Sydney, Australia. *Intelligent Technologies in Robotics and Automation*, 293–299 (2007). Keynote-Invited Presentation. ISBN: 978-1-86365-718-1.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Convergence of Riesz space martingales, *Indagationes Mathematicae (New Series)*, **17** (2006), 271–283.
- C.C.A. LABUSCHAGNE, A.L. PINCHUCK, The set of fuzzy points of a fuzzy vector lattice is not a vector lattice, *Fuzzy Sets and Systems*, **157** (2006), 2783–2785.
- S.F. CULLENDER, C.C.A. LABUSCHAGNE, A description of norm-convergent martingales on vector valued  $L^p$ -spaces, *Journal of Mathematical Analysis and Applications*, **323** (2006), 119–130.
- C.C.A. LABUSCHAGNE, A Dodds-Fremlin property for Asplund and Radon-Nikodým operators, *Positivity*, **10** (2006), 391–407.

- S.F. CULLENDER, W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Measure-free martingales with application to classical martingales. In: J. Lawry (ed.) et al., Soft methods for integrated uncertainty modelling. Proceedings of the 2006 international workshop on soft methods in probability and statistics (SMPS 2006), Bristol, United Kingdom, September 5–7, 2006. Berlin: Springer. *Advances in Soft Computing*, 121–128 (2006). ISBN: 3-540-34776-3.
- C.C.A. LABUSCHAGNE, Equivalence of the Bochner norm and its transpose characterizes  $L^p$ -spaces, *Journal of Mathematical Analysis and Applications*, **308** (2005), 746–758.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Conditional expectations on Riesz spaces, *Journal of Mathematical Analysis and Applications*, **303** (2005), 509–521.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, A zero-one law for Riesz space and fuzzy processes. In: Y. Liu (ed.) et al., Fuzzy Logic, Soft Computing and Computational Intelligence (Volumes I, II, III). Collection of papers presented at the International Fuzzy Systems Association World Congress (IFSA 2005), Beijing, China, July 28–31, 2005. Tsinghua University Press, Springer, Beijing, 2005. *Fuzzy Logic, Soft Computing and Computational Intelligence, Volume I*, 393–397 (2005). ISBN: 7-302-11377-7.
- C.C.A. LABUSCHAGNE, Characterizing the one-sided tensor norms  $\Delta_p$  and  ${}^t\Delta_p$ , *Quaestiones Mathematicae*, **27** (2004), 339–363.
- C.C.A. LABUSCHAGNE, Riesz reasonable cross norms on tensor products of Banach lattices, *Quaestiones Mathematicae*, **27** (2004), 243–266.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Discrete-time stochastic processes on Riesz spaces, *Indagationes Mathematicae (New Series)*, **15** (2004), 435–451.
- W.-C. KUO, C.C.A. LABUSCHAGNE, B.A. WATSON, Riesz space and fuzzy upcrossing theorems. In: M. López-Díaz (ed.) et al., Soft methodology and random information systems. Collection of papers presented at the 2nd international conference on soft methods in probability and statistics (SMPS 2004), Oviedo, Spain, September 2–4, 2004. Berlin: Springer. *Advances in Soft Computing*, 101–108 (2004). ISBN 3-540-22264-2.
- C.C.A. LABUSCHAGNE, A note on the order continuity of the norm of  $E\tilde{\otimes}_m F$ , *Archiv der Mathematik (Basel)*, **62** (1994), 335–337.
- J.J. GROBLER, C.C.A. LABUSCHAGNE, An f-algebra approach to the Riesz tensor product of Archimedean Riesz spaces, *Quaestiones Mathematicae*, **12** (1989), 425–438.
- J.J. GROBLER, C.C.A. LABUSCHAGNE, A note on the approximation of elements in the Riesz tensor product, *Mathematische Zeitschrift*, **201** (1989), 273–277.



- J.J. GROBLER, C.C.A. LABUSCHAGNE, The tensor product of Archimedean ordered vector spaces, *Mathematical Proceedings of the Cambridge Philosophical Society*, **104** (1988), 331–345.
- J.J. GROBLER, C.C.A. LABUSCHAGNE, An existence proof for the Riesz tensor product by operator methods, *South African Journal of Science*, **84** (1988), 330–331.

## Conference Participation

### Papers Submitted for Conference Presentation

- C.C.A. LABUSCHAGNE, T.M. OFFWOOD, On the fundamental theorems of asset pricing, *Third Meeting of the Econometric Society of Thailand*, Chiang Mai University, Thailand.

### Papers Accepted for Conference Presentation

- C.C.A. LABUSCHAGNE, H.T. NGUYEN, A universal framework for financial and actuarial pricing of risk: myth or reality? *Third Meeting of the Econometric Society of Thailand*, Chiang Mai University, Thailand.

### International Conferences

- *The Fifth General Conference on Advanced Mathematical Methods in Finance*, Bled, Slovenia, May 2010 (to participate).
- *Workshop on Foundations of Mathematical Finance*, Fields Institute, Toronto, Canada, January 2010 (to participate).
- *Third Meeting of the Econometric Society of Thailand*, Faculty of Economics, Chiang Mai University, Thailand, January 2010 (to participate).
- *International Conference on Stochastic Analysis and Applications*, Hammamet, Tunisia, October 2009.
- *Positivity VI*, El Escorial, Spain, July 2009.
- *International Conference on Interdisciplinary Mathematical and Statistical Techniques IMST 2009 / FIM 17*. The Department of Mathematics, University of West Bohemia, Plzen, Czech Republic, May 2009.
- *Fourth General Conference on Advanced Mathematical Methods in Finance*, Ålesund, Norway, May 2009.
- *Quantitative Methods in Finance Conference (QMF)* – 2008, Sydney, Australia, December 2008.
- *The 9th International Conference on Intelligent Technologies, InTech* 2008. Samui, Thailand, October 2008.
- *Third Mathematics in Finance Conference* – 2008. Berg-en-Dal, Kruger National Park, South Africa, August 2008.

- *Fifth World Conference of the Bachelier Finance Society* – 2008, London, United Kingdom, July 2008.
- *International Conference on Interdisciplinary Mathematical and Statistical Techniques IMST 2008 / FIM 16*. Department of Mathematical Sciences, The University of Memphis, Memphis, United States of America, May 2008.
- *The 8th International Conference on Intelligent Technologies, InTech 2007*. Sydney, Australia, December 2007.
- Invited Speaker.
- *The 8th International Conference on Fixed Point Theory and its Applications*. Chiang Mai, Thailand, July 2007.
- *Second Meeting on Vector Measures and Integration*. Escuela Técnica Superior de Ingenieros of the Universidad de Sevilla, Seville, Spain, November 2006.
- *Conference on Soft Methods in Probability and Statistics* – 2006. Bristol, England, September 2006.
- *Carthagos 2006, Workshop-Conference on Positivity*. Beït Al-Hikma, Carthage, Tunisia, June 2006.
- *Banach Spaces and their Applications in Analysis – a conference in honour of Nigel Kalton's 60th birthday*. Miami University, Oxford, Ohio, United States of America, May 2006.
- *The Fifth Conference on Function Spaces* – 2006. Southern Illinois University at Edwardsville, St Louis, Illinois, United States of America, May 2006.
- *International Fuzzy Systems Association World Congress* – 2005. Tsinghua University, Beijing, China, July 2005.
- *Conference on Soft Methods in Probability and Statistics* – 2004. Oviedo, Spain, September 2004.
- *International Conference on Abstract Analysis in Africa* – 2003. Bergendal, Kruger National Park, South Africa, July 2003.
- *Sussex Category Meeting*. Isle of Thorns, University of Sussex, Sussex, England, July 1996.
- *Blaubeuren Workshop on  $C_0$ -semigroups*. Blaubeuren, Germany, October 1993.
- *International Conference on Abstract Analysis in Africa* – 1993. Bergendal, Kruger National Park, South Africa, April 1993.
- *Linear Operators and Applications*. Oberwolfach, Germany, October 1989.
- *Riesz Spaces and Linear Operators*. Oberwolfach, Germany, April 1989.

### **Mini-Conference**

- The Pietsch Honorary Doctorate Celebrations (in honour of Professor Albrecht Pietsch, Jena, Germany receiving an honorary Doctorate from the University of Pretoria), held at Department of Mathematics and Applied Mathematics, University of Pretoria, April 2008.

### **Conferences of the South African Mathematical Society**

- Regular participant in the annual Conference of the South African Mathematical Society.

### **Research Visitors Hosted**

- Professor Valeria Marraffa, Dipartimento di Matematica e Applicazioni, Università degli Studi di Palermo, Via Archirafi 34, I-90123 Palermo, Italy, (planned for) July 2010.
- Professor Joseph Diestel, Department of Mathematics, Kent State University, Kent, Ohio, United States of America, (planned for) November 2009.
- Professor Jia-an Yan, Academy of Mathematics and Systems Science, Chinese Academy of Science, Beijing, China, August 2008.
- Professor Wieslaw Zelazko, Polish Academy of Science, Warsaw, Poland, June 2007.
- Professor Joseph Diestel, Department of Mathematics, Kent State University, Kent, Ohio, United States of America, August 2003.
- Professors Paulette Saab and Elias Saab, Department of Mathematics, University of Missouri, Missouri, United States of America, September 2002.
- Professor Heinz König, Department of Mathematics, Universität des Saarlandes, Saarbrücken, Germany, July 1992.
- Professor Helmut Schaefer, Department of Mathematics, Eberhardt Karls Universität, Tübingen, Germany, February 1988.

### **Research Visits Undertaken**

As research visitor hosted by:

- Professor Valeria Marraffa, Dipartimento di Matematica e Applicazioni, Università degli Studi di Palermo, Via Archirafi 34, I-90123 Palermo, Italy, January 2009 and June 2009.
- Professor Quang Ha, ARC Centre of Excellence for Autonomous Systems, Mechatronics and Intelligent Systems, Faculty of Engineering, University of Technology Sydney, Australia, December 2008.

- Professor Sompong Dhompongsa, Centre of Excellence for Fixed Point Theory, Department of Mathematics, Chiang Mai University, Chiang Mai, Thailand, June 2008.
- Professors Qingying Bu and Gerard Buskes, Department of Mathematics, The University of Mississippi, Oxford, Mississippi, United States of America, May 2008.
- Professor Shoumei Li, Department of Applied Mathematics, Beijing University of Technology, Beijing, China, March – April 2006.
- Professor Heinz König, Department of Mathematics, Universität des Saarlandes, Saarbrücken, Germany, October 1993– March 1994.
- Professor Helmut Schaefer, Department of Mathematics, Eberhardt Karls Universität, Tübingen, Germany, October 1989 – February 1990.
- Professor Helmut Schaefer, Department of Mathematics, Eberhardt Karls Universität, Tübingen, Germany, May 1989.

## REFERENCES

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