

CURRENT DESIGNATION:

Professor, Department of Chemistry, UWC - 2008

Chairperson: Electrochemistry division of SACI (ElectrochemSA) – 2006

Co-leader SensorLab: Chemistry department UWC - 2004

CONTACT DETAILS:

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**AWARDS AND RECOGNITION**

- 2006 - :** Chairperson: Electrochemistry division of South African Chemical Institute (SACI)-*current*
- 2008:** **Conference chairperson:** 1st International symposium on Electrochemistry, 8-11 July 2008, Bellville South Africa
- 2008** Guest Editor, *Electrochimica Acta* (Elsevier) 55 (14); 30 May 2010
- 2009:** Keynote lecture, SMCBS'2009, Poland 6-10 November 2010
- 2009:** **Conference Chairperson:** 10th International symposium on Kinetics in Analytical Chemistry; 2-4 December 2009.
- 2010:** Keynote lecture, *Analitika* 2010, 4-9 December 2010, Stellenbosch
- 2011:** Guest Editor, *Analytical Letters*, Volume 44 (11), June 2011
- 2013:** **Deputy chair, division 1** (Analytical Electrochemistry) International Society for Electrochemistry (2013-)
Visiting professor, University Cergy Pontoise (Paris, France) October/ November 2013.
- 2014:** **Visiting professor**, University Cergy Pontoise (Paris, France) 2013-2015.
Member of the international organizing committee: 14th Topical Meeting of the International Society of Electrochemistry (Electrochemistry for Life Science and Bioanalysis), 29 March to 1 April, 2014, Nanjing, China.
- 2014:** **Winner:** Department of Science and Technology, **Distinguished Women Scientist award**, Physical and Engineering Sciences.
<http://mg.co.za/article/2014-08-18-distinguished-women-researchers>
- 2014:** University of the Western Cape, DVC Young Researcher award.
- 2015:** Council Member, University of the Western Cape
- 2015:** Chairperson: #rd International Symposium on Electrochemistry, 26-28 May 2015, Bellville, South Africa

LEADERSHIP POSITIONS

Co-leader: Sensor research laboratory, Chemistry department, UWC, 2004
Chairperson: Electrochemical division of SACI (ElectrochemSA), 2007-
Deputy Chairperson: Electroanalytical Chemistry (Division 1) International Society for Electrochemistry (2013-)
Deputy HOD: Chemistry department (2011-)
Council Member: University governance body, UWC (2015-2017)
Chairperson: 3rd International symposium on Electrochemistry, 26-28 May 2015, Bellville, South Africa

EDUCATIONAL QUALIFICATIONS

- **Bachelor of Science** (1990, University of Cape Town)
- **National Diploma in Analytical** (1993, Cape Peninsula University of Technology)
- **BSc Honours (Chemistry)** (1995, UWC)
- **MSc Chemistry.** “The evaluation of trace metals in the atmosphere” (1997, University of the Western Cape)
- **Ph.D Chemistry.** “Synthesis and Characterisation of novel metal tin oxide composites as anodes for phenol degradation” (2004, University of Stellenbosch)

PROFESSIONAL ACTIVITIES:

Journal Reviewer: *Analytica Chimica Acta*; *Journal of Applied polymer Science*
Biosensors Bioelectronics; *Talanta*; *Electrochimica Acta*, *Water Science and Technology*,
Journal of Electroanalytical Chemistry and others

Guest editor: (i) *Electrochimica Acta* special issue “Sensors and Sensor Technology”; *Electrochimica Acta* 55 (14), 30 May 2010
(ii) *Analytical Letters*, Volume 44 (11) June 2011

COLLABORATIONS

ESNAM (European network) 2012-2013 Artificial muscles and actuators

Partners: 15+ European, African and UK partners

Marie Curie FP7 Mobility programme: 2013-2018; *Cancer nanosens*

Partners: 13 European and African countries

NSF Materials world network research cooperation programme (2010-2013)

Partners: Prof PGL Baker (University of the Western Cape, RSA) and Prof O Sadik (State University of New York, Binghamton, USA);

South Africa – Germany Key International Scientific Cooperation (2011-2013)

Partners: Prof PGL Baker (University of the Western Cape, RSA) and Prof C Wittmann (Neubrandenburg University, Neubrandenburg, Germany);

Water Research Commission (2009-2015)

University Cergy Pontoise: French Embassy bursary programme, DST/ COST researcher exchange (2013-2015).

SUPERVISION

Post-Graduate (PhD)

Richard Akinyeye (2007), Immaculate Michira (2007), Vernon Somerset (2007), Michael Klink (2007), Joseph Owino (2010), Everlyne Songa (2010), Zelo Mangombo (2010), Jasmina Martinovic (2010), Omotayo Arotiba (2010), Fanelwa Rachel Ngece (2011), Munkombwe Muchindu (2011), Heidi Richards (2012), Rasaan Olowu (2012), Peter Ndangili (2012), Kanyisa Nohako (2013), Euodia Hess (2013), Milua Masikini (2013), Stepehn Mailu (2013), Oluwakemi Tovide (2014), Nolubabalo Matinise (2014), Christopher E Sunday (2014), Mawethu Bilibana (2014), Gcineka Mbambisa (2015), Xolile G Fuku (2015).

Post-doctoral fellows:

Dr Amir Al Ahmid, Dr Raju Khan, Dr Anna Ignaszak, Dr Tesfaye Waryo, Dr Faiza Iftikhar, Dr Abd Baleg, Dr Milua Masikhini. Dr Christopher Sunday, Dr Milua Masikhine

Visiting researchers:

Lucian Zamfir: University of Bucharest September –November 2014
Molla Tefera: University of Addis Ababa, August- November 2015

RESEARCH PROFILE

Professor Priscilla Baker is co-leader of SensorLab, an electrochemistry research group in the department that focuses on the fundamental and applied electrodynamics of materials and sensors. Her specialisation is in the application of frequency modulated electrochemical techniques, notably electrochemical impedance spectroscopy – a technology that characterises organic and inorganic materials according to their equilibrium electrical properties – to the design and evaluation of electrochemical smart materials. These materials include hydrogels produced from polysulfone (a group of plastics that are moldable at certain temperatures), a product that can be applied in organic fuel cells and as membrane materials for water treatment. Researchers under her supervision have developed novel polyamic acid composites – usually thin film with thermal and mechanical properties – that have been applied in the design of immunosensors that can detect the presence of mycotoxins (toxic chemicals produced by fungi) in fish species and water analysis. Baker's more recent research includes the design and evaluation of novel electroactive actuator systems (materials that change in size or shape when stimulated by an electric field) for atmospheric monitoring. Baker collaborates with researchers in US, Germany and France, partnerships that lead to numerous student exchange opportunities. She is also an active member of two research consortia funded by the Seventh Framework Programme (or FP7) of the European Commission, specifically the European Scientific Network for Artificial Muscles (ESNAM) and the Marie Curie International Research Staff Exchange Scheme (IRSES). She has participated in international teaching and training programmes at Wales University (Bangor, UK), Coimbra University (Portugal) and University of Cergy Pontoise (France). Baker has supervised 50+ Honours, MSc, and doctoral researchers as well as post-doctoral fellows. Students who have graduated under supervision currently hold leadership positions at South African Police Services (Forensics), CSIR, Mintek, City of Cape Town and academic and advisory positions at academic and government institutions throughout Africa. Baker was announced Winner of the Department of Science and Technology, **Distinguished Woman Scientist** award in the category Physical and Engineering Sciences (2014) and in the same year she was awarded the **Deputy Vice Chancellor's Young researcher Award**, by the University of the Western Cape. Her research profile has been featured by leading South Africa news network publications such as **Mail& Guardian**, the woman's magazine "**KUIER**" as well as the international online publication Laboratory Marketing Spectrum, **LMS**.

PUBLICATIONS IN PEER REVIEWED JOURNALS:

1. *Y von Schirnding , A Matthee, P Robertson*, N Strauss, M Kibel .* Distribution of blood lead levels in schoolchildren in selected Cape Peninsula suburbs, subsequent to reduction in petrol lead; **South African Medical Journal**, Volume 91(10), October 2001.
2. *Y von Schirnding , N Strauss , A Matthee, P Robertson*, P Blignaut* Sunscreen use and environmental awareness among beach goers in Cape Town, South Africa. **Public Health Reviews**, Volume 19 (1-4), 1991-1992.
3. PG Baker, EG Brunke, F Slemr, AM Crouch. Atmospheric mercury measurements at Cape Point, South Africa: **Atmospheric Environment** ,(36), 2002, p2549-2465.
4. PGL Baker, AM Crouch , R S Sanderson, W.J. Przybylowicz, C.C. Theron. Characterisation of mixed metal tin oxide thin films for application as electrocatalysts. **National Accelerator Centre, Annual Report**, March 2001.
5. Removal of Organic components and bacteria from Water by Electrochemical Combustion. Cronje M, Baker PGL, Knoetze J H, Sanderson R D, Crouch A M. **WRC report no. 1196/1/05, p125**.
6. Chemical synthesis and morphology of β naphthalene sulfonic acid-doped polypyrrole micro/nanotubes. Richard Akinyeye, Mantoa Sekota, Priscilla GL Baker and Emmanuel Iwuoha. **Fullerenes, Nanotubes and Carbon Nanostructures** Volume 14 (1) (2006).