Brian Lyndon Watson

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EDUCATION

Postdoctoral Fellowship Materials Science & Engineering — May 2014 - April 2017
Stanford University*, Stanford CA.* Advisor: Reinhold H. Dauskardt.

Ph.D. Chemistry (GPA 3.93/4) — Aug 2008 - Dec 2013
Arizona State University*, Tempe AZ*. Advisor: Devens Gust.

B.Sc. Honours Chemistry (GPA 74/100) — Feb 2007 - Dec 2007
University of Cape Town, *Rondebosch, South Africa*. Advisor: Prof Greg Smith.

B.Sc. Chemistry and Biochemistry (GPA NA) — Feb 2002 - Dec 2006
University of Cape Town*, Rondebosch, South Africa.*

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow — Dauskardt Group - Stanford University — May 2014 - Present

- Generated intellectual property for the filing of two patents
- Wrote grants and obtained funding for prototyping a new solar cell design, the Compound Solar Cell.
- Invented and lead the development of the Compound Solar Cell - overcoming brittle fracture of perovskite solar cells.
- Developed a cross-linkable fullerene, successfully mitigating solar cell failure in the fullerene layer.
- Developed a cross-linking agent for toughening p-type semiconducting polymers, simultaneously increasing the efficiency and fracture resistance of perovskite solar cells.

Postdoctoral Fellow — Center for Bio-Inspired Solar Fuel Production — Dec 2013 - April 2014

- Designed and synthesized a molecular scaffold and used it to create a light absorbing dye capable of absorbing light across the entire solar spectrum.

Research Assistant — Center for Bio-Inspired Solar Fuel Production — Jan 2010 - Dec 2013

- Developed a new motif in the design of light absorbing molecules, which increased the performance of dye-sensitized solar cells by over 200%.
- Successfully synthesized a series of novel dyadic and triadic porphyrin-fullerene monomers and demonstrated their transformation into polymers for use in solar cells.

PATENTS

1. **Brian L. Watson**, Nicholas Rolston, Reinhold H. Dauskardt, *Synthesis and Use of Azide-Functionalized Nodes for Cross-linking Materials Containing Organic Components,* Appl. No**. 62/479803**. Filed on 31 March 2017.
2. **Brian L. Watson**, Nicholas Rolston, Adam D. Printz, Reinhold H. Dauskardt, *Mechanical Scaffolds for Enhancing the Thermomechanical and Chemical Reliability of Thin Film (Perovskite) Device Technologies,* Appl. No. **62/479773**, Filed on 31 March 2017.

PUBLICATIONS (Impact Factors Bracketed)

In Review: 2 First-author publications submitted for review in: *Nature Energy* and *Advanced Energy Materials* (15.2)

Published: 7 Publications including 4 first-author publications in: *ACS Applied Materials & Interfaces* (7.14), *MRS Bulletin* (6.06), *Physical Chemistry Chemical Physics* (4.45), *Dyes & Pigments* (4.05), *Advanced Materials Interfaces* (3.37) and *Extreme Mechanics Letters.*

Awards

South African National Energy Research Institute — Scholarship, full support for a 2-year masters degree — 2008
Rotary Club of Constantia — Scholarship — 2002

LEADERSIP & SERVICE

Xenophobic Violence Relief Project — Cape Town, South Africa — Jun 2008 - Jul 2008
Initiated and managed a community response to an outbreak of xenophobic violence. The project involved relocating over 70 sub-Saharan refugees displaced from their homes to a temporary residence where the refugees were fed, clothed, and aided in obtaining refugees status and finding employment over a 2-month period.