

## *Curriculum Vitae*

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Citizenship: Australian

Date of Birth: 21 January 1982

### Formal Education

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- **Ph.D. in Astrophysics (2010)**  
University of New South Wales, School of Astrophysics and Optics, NSW.  
Hosted by the Australian National University, Research School of Astronomy and Astrophysics, ACT.  
PhD dissertation: “*Dark Energy, Anthropic Selection Effects, Entropy and Life*”.
- **1<sup>st</sup> Class Honours in Physics (2002)**  
Griffith University, School of Science, QLD.  
Honours Dissertation: “*Artifacts of the Gravitational Field in General Relativity*”.
- **Bachelor of Science with Advanced Studies, Mathematics and Physics Majors (2001).**  
Griffith University, School of Science, QLD.

### Reference Contact Details

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- **Prof. Brian Schmidt**  
Research School of Astronomy and Astrophysics, Australian National University, ACT, Australia.  
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- **Dr. Charles Lineweaver**  
Research School of Astronomy and Astrophysics, Australian National University, ACT, Australia.  
Research School of Earth Sciences, Australian National University, ACT, Australia.  
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- **Dr. Tamara Davis**  
DARK Cosmology Center, Niels Bohr Institute, Copenhagen, Denmark.  
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### Peer Reviewed Publications (three most significant marked with asterisk)

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#### In preparation

- Egan, Lineweaver & Davis (2010), “*Return of the Heat Death*”, in prep.

#### 2010

- Lineweaver & Egan (2010), “*Dark Energy and the Entropy of the Observable Universe*”, Invisible Universe Conference Proceedings, AIP Conference Proceedings 1241, p645.
- \* Egan & Lineweaver (2010), “*Larger Estimate of the Entropy of the Universe*”, Astrophysical Journal 710, p1825. arXiv:0909.3983

## 2009

- Egan (2009), “*Dark Energy, Anthropic Selection Effects, Entropy and Life*”, PhD dissertation, The University of New South Wales, accepted January 2010.
- Lineweaver & Egan (2009), “*Dark Energy and the Entropy of the Observable Universe*”, proceedings of the Invisible Universe International Conference, Paris, Palais de l'UNESCO June 29- July 3.

## 2008

- \* Egan & Lineweaver (2008), “*Dark Energy Dynamics Required to Solve the Cosmic Coincidence*”, Physical Review D 78. arXiv:0712.3099
- Lineweaver & Egan (2008), “*Life, Gravity and the Second Law of Thermodynamics*”, Physics of Life Reviews 5.
- Robles, Egan & Lineweaver (2008), “*Statistical Analysis of the Solar and Stellar Properties*”, Australian Space Science Conference Series: 8<sup>th</sup> Conference Proceedings.
- \* Robles et al (2008), “*A Comprehensive Comparison of the Sun to Other Stars: Searching for Self-Selection Effects*”, Astrophysical Journal 684. arXiv:0805.2962

## 2007

- Lineweaver & Egan (2007), “*The Cosmic Coincidence Problem as a Temporal Selection Effect Produced by the Age Distribution of Terrestrial Planets in the Universe*”, Astrophysical Journal 671. arXiv:astro-ph/0703429

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## Employment

- **Hydrology Modeler (2009-present)**  
Basin Planning, Murray Darling Basin Authority, Canberra  
Duties include hydrology modeling for long-term water resource management strategies in the Murray Darling Basin of Australia.
- **Graduate Teaching Assistant (2006-2008)**  
University of New South Wales @ ADFA, Canberra  
Duties include preparing and delivering tutorial material for several undergraduate mathematics and physics courses, and demonstrating undergraduate physics labs.
- **Graduate Teaching Assistant (2006-2007)**  
Australian National University, Canberra  
Duties include delivering tutorial material for undergraduate physics, and demonstrating undergraduate physics labs.
- **Graduate Teaching Assistant (2004-2005)**  
University of New South Wales, Sydney  
Duties include preparing and delivering tutorial material for an undergraduate course “Are We Alone?”, and demonstrating undergraduate physics labs.

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## Computational Skills

- **Programming**  
IDL (preferred), Fortran, C++, Java,  
Python, Perl,  
HTML, Actionscript
- **Packages/Libraries**  
cmbFAST, CAMB,  
Numerical Recipes,  
NASA astro IDL libraries

## In the Media

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- **Sydney Morning Herald**, a nationally distributed Australian newspaper, published an article based on Egan & Lineweaver (2010): “*Harness Black Holes for Good, Not Evil*” by Warwick McFadyen, 27 January 2010.
- **The Age**, a nationally distributed Australian newspaper, published an article based on Egan & Lineweaver (2009): “*End to end all ends ‘is closer than you think’*” by Bridie Smith, 26 January 2010.
- **Canberra Times** published an article based on Egan & Lineweaver (2010): “*End of the world is nigh – but still 5b years away*” by Jenna Hand, 26 January 2010.
- **Science News** published an online article based on Egan & Lineweaver (2010): “*Universe has more entropy than thought – new calculations suggest that the cosmos may be a bit closer to heat death*” by Ron Cowen, 2 October 2009.
- **Wired Science** published an online article based on Egan & Lineweaver (2010): “*Supermassive Black Holes Bringing Universe Closer to Death*” by Ron Cowen, 2 October 2009.
- **ABC Radio Australia**’s Namila Benson and Clement Paligaru invited me as a guest on their show, “*In the Loop*”, to talk about cosmology and growing up in the Pacific. This was broadcast live across Australia, New Zealand, and the South Pacific, 3 February 2009 (re-aired on 4 February).
- **Matangi Tonga** published an online article about my background and my current work in cosmology: “*Origins of the Universe a Hot Topic for Tonga’s Astrophysicist*” by Pesi Fonua, 21 January 2009.
- **ABC Science** published an online article based on Egan & Lineweaver (2008): “*Simple Answer to a Dark Mystery*” by Stephen Pincock, 22 October 2008.