

Curriculum Vitae

Philip R. Brown

Academic degrees

Ph.D. Mathematics Texas A&M University, College Station, Texas Dissertation: Extremum problems relating to Bloch's and Landau's constants. Advisor: Professor Harold P. Boas	1993 - 2000
M.S. Mathematics University of the Witwatersrand, Johannesburg, South Africa Dissertation: Wavelet Analysis	1992 - 1993
B.S. Mathematics, Physics University of the Witwatersrand	1988 - 1991

Employment history and teaching experience

• Teaching Assistant, Texas A&M University Conducted recitation for calculus, advanced calculus, analysis	1993 – 1997
• Assistant Professor, Texas A&M University at Galveston Lectured finite mathematics, calculus, spherical trigonometry	2001 – 2007
• Associate Professor, Texas A&M University at Galveston Lecturing calculus, differential equations (undergraduate and graduate)	2007 – present
• Visiting Senior Lecturer , University of Pretoria, South Africa Lectured calculus and tutorials for introductory numerical analysis	2009
• Director of Mathematics laboratories , Dept. of Foundational Sciences	2020-present
• Assistant Department Head , Dept. of Foundational Sciences	2021 - 2024
• Interim Department Head , Dept. of Foundational Sciences, Texas A&M College of Marine Sciences and Maritime Studies	2024-present

Research interests

- Complex Analysis, conformal mapping, quasi-conformal mapping
- Geometric Function Theory
- Special Functions
- Control theory
- Number theory
- Fundamental constants of physics and mathematics

Research publications

- Bloch constants of order N , *Quaestiones Mathematicae* **24** (2001), 247-259
- Mapping of Circular Arc Polygons, *Complex Variables*, **50.2** (2005), 131-154
- Constructing mappings onto radial slit domains, *Rocky Mountain J. math*, no. **6** (2007), 1791-1812

- An investigation of a two parameter problem for conformal maps onto circular arc quadrilaterals, *Complex Variables and Elliptic Equations* **53** no.1 (2008), 23-51
- Conformal mapping of a gear domain with one tooth, *Quaestiones Mathematicae* **33** (2010), 277-289
- The scalar Nevanlinna-Pick interpolation problem with boundary conditions (with L. Luxemburg), *Journal of Computational and Applied Mathematics* **235** (2011), 2615-2625
- Conformal Mapping of Circular Quadrilaterals and Weierstrass Elliptic Functions (with M. Porter), *Computational Methods and Function Theory* **11** (2011), no.2, 463-486
- Gears, pregears and conformally related domains (with M. Porter), *Complex Variables and Elliptic Equations* **61** (2016), no.1, 89 - 103
- Numerical conformal mapping to one-tooth gear-shaped domains and applications, (with M. Porter), *Computational Methods and Function Theory* **16** (2016), no.2, 319-345
- Mysticism and the Fine Structure Constant, *Journal of Scientific Exploration*, Vol. 34, No. 3, pp. 455–492, (2020)
- Detecting Square numbers, *Quaestiones Mathematicae* **44** (2021), No. 2, 163–185
- Idempotent and Nilpotent Elements in Octonion Rings over $\mathbb{Z}_p$ (with Michael Aristidou and George Chailos), *Studia Universitatis Babeş-Bolyai Mathematica* **69** (2024), No. 1, 3–14,

Other publications

- Mosely and Pythagoras, On number and causality, EdgeScience magazine **52** (April 2023), 3-7

Submitted papers

- detecting large squares

Other recognition for research

- *Discovering perfect squares and building square roots*, Research Outreach magazine **114** (2020), www.researchoutreach.org

Teaching related publications

- *Geometry is Fun*, a problem-solving manual for high school students (with Ria Brown) Provento Educational Publishers, South Africa 2011
- *Foundations of Mathematics*, a college textbook with ten chapters on algebra, geometry, trigonometry, and calculus, Mercury Learning and Information (originally self-published as *Algetrigulus* in 2013) 2016
- Approximations of e and π : an exploration, *International Journal of Mathematical Education in Science and Technology* (TMES) Vol. **48** (2017), No. S1, pp. S30-S39

Research Funding

- Supported by Mexican CONACyT grant 80503 2010
- Supported by Mexican CONACyT grant 166183 2014-2015

Memberships in organizations

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| • American mathematical Society (AMS) | 2000-2008 |
| • Mathematics Association of America (MAA) | 2000 -2008 |
| • Tex Users Group (TUG) | 2001 - 2018 |
| • South African Mathematical society | 2009 - present |
| • United States Chess Federation (current chess rating: 1699) | 2010 - 2019 |
| • Houston Jung Center | 2019 |
| • Full member of the Society for Scientific Exploration | 2020 - present |

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