

## **Curriculum Vitae: John Boland**

Present Position: Senior Lecturer in Mathematics  
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## **Grants: John Boland**

1998	Boland J.	State Energy Research Advisory Council (SENRAC) Grant for a one year scholarship for a Masters student. <b>Estimation of the Thermal Sensitivity of a Small House to Variations in Building Architectural and Behavioural Parameters</b>	\$16,300
1999	Boland J.	Faculty Research Grant <b>Modelling Diffuse Radiation</b>	\$6,000
2000	Howlett P.G. Boland J.	Divisional Interdisciplinary Research Grant <b>Biological Monitoring at Mawson Lakes</b>	\$15,000
2000	Boland J.	Divisional Student Vacation Grant <b>Constructing Rainfall Data Sets</b>	\$1,600
2000	Boland J.	SENRAC Grant for one year scholarship for a Masters student. <b>Estimation of the Thermal Sensitivity of a Small House to Variations in Building Architectural and Behavioural Parameters</b>	\$16,300
2000	Saman W. Boland J.	SENRAC Grant <b>A program for evaluating, regulating and monitoring of energy consumption in a major suburban housing development.</b>	\$39,100
2000-2002	Howlett P.G. Boland J.W. McKay J.M. Mulcahy D.E.	ARC Strategic Partnerships with Industry - Research and Training (SPIRT) <b>A Water Cycle Management System for a Major Urban Development at Mawson Lakes.</b>	\$231,480
2000-2001	Saman W. Boland J.W. Olipant M.	Office of Energy Policy Australian Greenhouse Office Household Greenhouse Action <b>SA Household Greenhouse Gas Reduction Scoresheet</b>	\$131,000
2001-2002	Boland J.W. Mulcahy D.	Division of ITEE Interdisciplinary Research Grant	\$10,000
2002	Boland J.W.	SENRAC Grant <b>Construction of House Thermal Nomogram Software</b>	\$20,775
2002	Boland J.W. Tiver F.	USA Collaborative Grant	\$30,000
2004	Tiver F. Boland J.W.	CRC for Desert Knowledge <b>A mathematical-ecological model for predicting sustainability of arid shrub lands</b>	\$164,000
2004	Boland J.W.	Electricity Supply Industry Planning Council of South Australia <b>Mathematical Models in the Electricity Supply Industry</b>	\$66,000
2005	Boland J.W. Howlett P. Metcalf A.	ARC Discovery Grant <b>Mathematical Models in Water Cycle Management</b>	\$253,000

## Publications: John Boland

### Books

1. Boland, J., Mathematical Modelling of Heat Flows in Domestic Dwellings, Ph.D. Thesis in Applied Mathematics, University of Adelaide, 1996.

### Book Chapters

1. J. Boland, B. Whiten, J. Field and A. Brown, Reliability of Electricity Generation Networks, *Proceedings of the 2002 Mathematics-In-Industry Study Group*, Adelaide, 11-15 Feb., 2002., pp. 53-86, 2003.
2. J. Boland, V. Gaitsgory, P. Howlett and P. Pudney, Stochastic optimal control of a solar powered car, in *Progress in Optimisation III; Contributions from Australasia*, A. Rubinov Ed., Kluwer, 2000.
3. Boland, J. and Aguiar, R., Constructing the Annual Trend of Global Solar Irradiation from Knowledge of the Monthly Average Daily Values, *Proceedings of the Computational Techniques and Applications Conference*, Adelaide, 30-Sept.-97, 1998, pp 107-114.

### Refereed Journal Articles

1. K. Rosenberg, J. Boland, and P. G. Howlett, Simulation of monthly rainfall totals, *ANZIAM J.*, Vol. 46, pp. E85-E104, Nov, 2004.
2. Lynne C. McArthur, John W. Boland, Bruce Brown and G.K. Jones, Investigation of the influence of seagrass on fisheries catch level using isotonic regression, *Environmental Modeling and Assessment*, Volume 8, Issue 4, pp. 285-290, 2003.
3. Boland J., Kravchuk O., Saman W., Kilsby R., Estimation of the Sensitivity of a Dwelling to Variations in Architectural and Building Parameters, *Environmental Modelling and Assessment*, Vol. 8, pp. 101-113, 2003.
4. Ross K., Bidwell J., Boland J. Trace metals associated with seston from the Upper Spencer Gulf, South Australia: spatial distribution and temporal variability, *The Royal Society of South Australia*, Vol. 127, number 1, pp. 33-45, 2003.
5. Siddins M., Riederer M., Kanchanabat B., Mohan Rao M., Hewitt P., Boland J. The influence of Adhesive Drapes on Intraoperative Pressure and Volume During Laparoscopy, *The Australia and New Zealand Journal of Surgery*, Vol. 72, pp. 553-556 2002.
6. Boland J., The Analytic Solution of the Differential Equations Describing Heat Flow in Houses, *Building and Environment*, Vol. 37, pp. 1027-1035, 2002.
7. Boland J. and Dik M., The Level of Complexity Needed for Weather Data in Models of Solar System Performance, *Solar Energy*, Vol. 71, No. 3, pp. 187-198, 2001.
8. Boland J., Scott L., and Luther M., Modelling the Diffuse Fraction of Global Solar Radiation on a Horizontal Surface. *Environmetrics*, Vol. 12, pp. 103-116, 2001.
9. Scott L., Boland J., Edyvane K. and Jones K., Development of a Seagrass Fish - Habitat model: I: A Seagrass Residency Index for Economically Important Species. *Environmetrics*, Vol. 11, pp. 541-552, 2000.
10. Boland, J., Simplifying the Solution of the Differential Equations Which Describe Heat Flows in Domestic Dwellings, *Building and Environment*, Vol. 32, No. 5, pp. 479-484, 1997.

11. Boland J., The Importance of the Stochastic Component of Climatic Variables in Simulating the Thermal Behaviour of Domestic Dwellings, *Solar Energy*, Vol. 60, pp. 359-366, 1997.
12. Boland, J., Time Series Analysis of Climatic Variables, *Solar Energy*, Vol. 55, No. 5, pp. 377-388, 1995.

### Refereed Conference Proceedings

1. John Boland and Barbara Ridley, Quality control of climatic data sets, *Proceedings of the 42nd Annual Conference of the Australia and New Zealand Solar Energy Society*, Perth, Dec. 2004.
2. Lynne McArthur, John Boland and Fleur Tiver, Parameter estimation for stage-structured projection models using real data, *Proceedings of the 2003 Modelling and Simulation Conference*, Townsville, July, 2003.
3. K. Rosenberg, J. Boland and P.G. Howlett, Modelling and simulation of rainfall data at Mawson Lakes, *Ecosystems and Sustainable Development 2003, ECOSUD*, Siena, Italy, June, 2003.
4. John Boland and Lynne McArthur, Models of the Diffuse Solar Fraction, *Proceedings of the ISES 2001 Solar World Congress*, Adelaide, 25-30 Nov 2001, pp. 1963-1972, 2003.
5. Barbara Ridley and John Boland, Generating Synthetic Typical Meteorological Years, *Proceedings of the ISES 2001 Solar World Congress*, Adelaide, 25-30 Nov 2001, pp. 1973-1978, 2003.
6. Olena Kravchuk and John Boland, Vegetation Shading for Internal Comfort, *Proceedings of the ISES 2001 Solar World Congress*, Adelaide, 25-30 Nov 2001, pp. 201-206, 2003.
7. Kathrine Rosenberg, John Boland and Phil Howlett, Application of Laguerre Polynomials to the Simulation of Rainfall at Mawson Lakes, *Ninth International Conference on Urban Drainage*, Portland, Oregon, 8-13 Sept., (on CD-ROM), 2002.
8. Julia Piantadosi, John Boland and Phil Howlett, Stormwater Management in a Sequence of Inter-connected Storage Systems, *Ninth International Conference on Urban Drainage*, Portland, Oregon, 8-13 Sept., (on CD-ROM), 2002.
9. Rosenberg, K., Boland, J. & Howlett, P. Simulated Rainfall records using Maximum likelihood methods and series of associated Laguerre polynomials, *Optimisation Day*, Curtin University of Technology, Perth, October 2002.
10. John Boland, The Mathematics Bridging Course at the University of South Australia, *Proceedings of the Second International Conference on the Teaching of Mathematics*, Crete, 1-6 July 2002.
11. Boland J., Dik M., Piantadosi J. and Scott L., Studies for Improving the Creation of Data Sets for Solar System Performance Evaluation, *Proceedings of the Millenium Solar Forum 2000*, Mexico City, Sept. 17-22, 2000.
12. Scott L. and Boland J., Predicting the Diffuse Fraction of Global Solar Radiation using Regression and Fuzzy Logic, *Solar '99, Proceedings of the Annual Conference of the Australia and New Zealand Solar Energy Society*, Geelong, Nov. 30 - Dec. 3, 1999.
13. Kravchuk O., Boland J., and Kaya C.Y., The frequency domain algorithm for selection of building parameters to provide comfort temperature in a dwelling, *Solar '99, Proceedings of the Annual Conference of the Australia and New Zealand Solar Energy Society*, Geelong, Nov. 30 - Dec. 3, 1999.
14. Kravchuk O., and Kaya C.Y., Incorporation of external climatic parameters for thermal control of a dwelling, *Solar '99, Proceedings of the Annual Conference of the Australia and New Zealand Solar Energy Society*, Geelong, Nov. 30 - Dec. 3, 1999.

15. Boland J., Kravchuk O., Saman W., Kilsby R., Estimation of the Sensitivity of a Dwelling to Variations in Architectural and Building Parameters, *Proceedings of the 5th International Conference of the Decision Sciences Institute, Athens*, July 4-7, 1999.
16. Boland J., Gaitsgory V., Howlett P., and Pudney P., Efficient Frontiers and Solar Cars, *Solar '98, Proceedings of the Annual Conference of the Australia and New Zealand Solar Energy Society, Christchurch, New Zealand*, 24-NOV-98, pp 438-445.
17. Boland J., Bryant C., and Kravchuk O., Methods of Comparison of Wall Materials for Houses, *Solar '98, Proceedings of the Annual Conference of the Australia and New Zealand Solar Energy Society, Christchurch, New Zealand*, 24-NOV-98, pp 46-52.
18. Boland J., Prediction of Solar Radiation and Ambient Temperature for Optimal Control of Infloor Heating, *Solar '98, Proceedings of the Annual Conference of the Australia and New Zealand Solar Energy Society, Christchurch, New Zealand*, 24-NOV-98, pp 53-60.
19. Boland, J., Construction of Synthetic Weather Data Sets for Use in Building Thermal Performance Prediction, *Proceedings: Solar '97 - Annual Conference of the Australia and New Zealand Solar Energy Society*, Canberra, November, 1997.
20. Boland, J. and Luther, M., Optimising Window Parameters for Energy Efficiency, *Conference Proceedings: Solar '96 - Annual Conference of the Australia and New Zealand Solar Energy Society*, Darwin, November, 1996.
21. Luther, M. and Boland, J., Optimising the Performance of the Window, *Conference Proceedings: Solar '96 - Annual Conference of the Australia and New Zealand Solar Energy Society*, Darwin, November, 1996.

### Supervised Completions

1. Olena Kravchuk, Master of Applied Mathematics, University of South Australia, *Parametric Study of Residential Dwellings: algorithms for selection of building thermal properties*, 2000.
2. Lynne McArthur, PhD. in Applied Mathematics, University of South Australia, *Quantification of the Relationship between Fish Populations and Seagrass*, 2003.
3. Kathrine Rosenberg, PhD. in Applied Mathematics, University of South Australia, *Stochastic Modelling of Rainfall and Generation of Synthetic Rainfall Data for Mawson Lakes*, 2004.
4. Julia Piantadosi, PhD. in Applied Mathematics, University of South Australia, *Optimal Policies for Storage of Urban Stormwater*, 2004.