

## Research grants – Daniel Macdonald

Total value as first investigator: \$9.5 million

Total value of all grants: \$18.8 million

1. **Go8/DAAD - Australia Germany Joint Research Co-operation Scheme.** D Macdonald and P Altermatt, *'Improved phosphorus diffusions for higher efficiency silicon solar cells'*, 2015-16, **\$19,500.**
2. **Australian Renewable Energy Agency (ARENA), Research and Development Round 1.** D Macdonald, T Trupke, *et al.*, *'Lowering the cost of high efficiency silicon solar panels'*, 2014-2018, \$2,023,407, plus \$863,619 from project partners. Total cash budget **\$2,887,026.**
3. **Australian Renewable Energy Agency (ARENA), Research and Development Round 1.** K Weber *et al.* *'Advanced surface and contact technologies improving solar cells'*, 2014-2018, \$4,102,000, plus \$2,360,500 from project partners. Total cash budget **\$6,462,500.**
4. **SunPower/Total**, independent research contract, 2014-2015, **\$62,653.**
5. **Australian Solar Institute (ASI) Australia-Germany Collaborative Research Project.** H Kampwerth, M. Schubert and D Macdonald, *'Time- and spectrally resolved photoluminescence for silicon solar cell characterisation'*, 2012-2015, **\$490,166.**
6. **ANU Major Equipment Grant.** D Neshev, I Staude, L Fu, D Macdonald, M Decker, A Minovich, S Mokkaapati, Liu, C Jagadish, Y Kivshar, H Tan, I Shadrivov, D Powell, H Hattori, I McKerracher, *'Enabling micro-resolution spectroscopy capabilities for next generation infra-red devices'*, 2012, **\$140,000.**
7. **ARC Future Fellowship FT110100680.** DH Macdonald. *'The science and engineering of defects and impurities in photovoltaic silicon,'* 2011-15, **\$790,524.**
8. **Australian Solar Institute (ASI) Round 2 PV Core Project.** D Macdonald, A Blakers, K Catchpole, A Cuevas, K McIntosh, K Weber, Q Huang, Z Feng, Y Yang, *'Industry Ready n-type Silicon Solar Cells'*, 2011-2014, \$3,335,254, plus \$1,000,000 from Trina Solar. Total cash budget **\$4,335,254.**
9. **ARC Linkages Equipment and Infrastructure Facilities LE110100127.** YY Wong-Leung, C Jagadish, DH Macdonald, RG Elliman, JS Williams, *'Hall effect system for detailed electrical characterisation in semiconductors'*, 2011, **\$250,000.**
10. **BT Imaging Pty Ltd**, industry funded PhD Scholarship plus laboratory costs, 2011-14, **\$181,500.**
11. **Go8/DAAD - Australia Germany Joint Research Co-operation Scheme.** D Macdonald and M Schubert, *'Advanced photoluminescence spectroscopy of impurities in silicon solar cells'*, 2011-12, **\$17,400.**
12. **ARC Linkages Equipment and Infrastructure Facilities LE100100121.** TJ White, JE Bradby, RL Withers, Y Liu, RG Elliman, MC Ridgway, A Cuevas, JS Williams, YY Wong-Leung, C Jagadish, AV Rode, I Jackson, DH Macdonald, JD Fitz Gerald, ZH Stachurski, *'An analytical transmission electron microscope for the investigation of functional materials, earth processes and novel condensed matter'*, 2010, **\$1,000,000.**

13. **Go8/DAAD - Australia Germany Joint Research Co-operation Scheme.** D Macdonald and J Schmidt, '*Interactions between metallic impurities in silicon for solar cells*', 2008-2009, **\$18,000**.
14. **ARC Linkages Equipment and Infrastructure Facilities LE0882262.** DH Macdonald, KR McIntosh, KJ Weber, ET Franklin, AW Blakers, A Cuevas and RG Elliman, '*Photoluminescence imaging equipment for advanced silicon materials and solar cells*', 2008, \$135,000. Supplemented by **ANU Major Equipment Grant**, 2008, \$76,000. Total amount awarded: **\$211,000**.
15. **ARC Discovery Grant DP0770380.** DH Macdonald, LJ Geerligs and J Schmidt, '*Unlocking the potential of n-type silicon for solar cells*', including a QEII Fellowship, 2007-2011, **\$735,000**.
16. **Dept of Education Science and Training, International Science Linkages Grant CG100017.** A. Cuevas and D. Macdonald, '*N-type multicrystalline silicon solar cells: A new avenue towards low-cost solar electricity*', 2006-2009, **\$303,044**.
17. **ARC Linkages Equipment and Infrastructure Facilities LE0561240.** A Cuevas, DH Macdonald, PP Altermatt and H Maeckel, '*Combined reactor for the plasma-enhanced chemical vapour deposition (PECVD) of amorphous layers of silicon, silicon nitride and silicon oxide, and for Reactive Ion Etching*', 2005, \$121,510. Supplemented by **ANU Major Equipment Grant**, 2005-2006, \$188,267. Total amount awarded: **\$309,777**.
18. **ARC Linkages Equipment and Infrastructure Facilities LE0560683.** AW Blakers, KJ Weber, P Deenapanray, DH Macdonald, PP Altermatt, CY Kwok, PJ Verlinden and MJ Kerr, '*A furnace stack for advanced photovoltaic, photonic and microfabrication applications*', 2005, **\$321,953**.
19. **ANU Faculty of Engineering and Information Technology Small Grants Scheme.** PNK Deenapanray and DH Macdonald '*Spatially-selective characterization of multi-crystalline Si using photoluminescence and deep level transient spectroscopy*', 2005, **\$6000**.
20. **ANU Faculty of Engineering and Information Technology Small Grants Scheme.** PNK Deenapanray and DH Macdonald '*Defect engineering of B- and Ga-doped Cz Si for the enhanced performance of cost-efficient solar cells*', 2004, **\$12,994**.
21. **ARC Discovery Grant DP0342902.** DH Macdonald, '*Lifetime spectroscopy of impurities in silicon solar cells*', including an Australian Postdoctoral Fellowship, 2003-2005, **\$253,000**.