

Updated: Mon 19<sup>th</sup> Aug, 2019

*Curriculum Vitae*  
AARON A. GOLDEN

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**PROFESSIONAL APPOINTMENTS**

- 2017–present Research Associate & Visiting Astronomer, Armagh Observatory & Planetarium,  
College Hill, Armagh, United Kingdom
- 2016–present College Lecturer, School of Mathematics, Statistics & Applied Mathematics, National  
University of Ireland, Galway, Rep. of Ireland
- 2014–2016 Visiting Scientist, Department of Astrophysics, American Museum of Natural History,  
New York, U.S.A.
- 2013–2016 Research Associate Professor, Department of Mathematical Sciences, Yeshiva  
University, New York, U.S.A.
- 2011–2016 Associate Professor, Department of Genetics, Albert Einstein College of Medicine,  
Bronx, U.S.A.
- 2009–2011 College Lecturer, School of Mathematics, Statistics & Applied Mathematics, National  
University of Ireland, Galway, Rep. of Ireland
- 2009 Visiting Fellow, European Bioinformatics Institute, Hinxton, U.K.
- 2006–2009 College Lecturer, College of Engineering & Informatics, National University of  
Ireland, Galway, Republic of Ireland
- 2004 Human Frontiers Science Foundation Fellow, Albert Einstein College of Medicine
- 2004 Visiting Astronomer, Paris Observatory, Paris, France
- 2003 Visiting Astronomer, National Radio Astronomy Observatory, U.S.A.
- 2002–2004 Visiting Professor, Centro do Astrofisica de Porto & Department of Applied  
Mathematics, University of Porto, Portugal
- 1999–2006 Junior Lecturer, Department of Information Technology, National University of  
Ireland, Galway, Rep. of Ireland
- 1998 Visiting Scientist, Max Planck Institute for Gravitational Physics, Gölm, Germany
- 1998 Visiting Scholar, Department of Astronomy, U.C. Berkeley, CA, U.S.A.

**PROFESSIONAL PREPARATION**

- 1999 Ph.D. Astrophysics National University of Ireland, Galway, Ireland  
Thesis: *High speed optical photometry of rotation-powered neutron stars*  
Thesis Committee: Prof. J. Bell-Burnell (Oxford University), Dr. J. Middleditch  
(LANL), Prof. R.M. Redfern (NUI Galway), Prof. A. Shearer (NUI Galway)
- 1993 M.Sc. Computational Science The Queens University of Belfast, Northern Ireland  
Thesis: *Modeling the effects of of cometary dust on radiative transfer & the terrestrial  
climate*, Advisor: Prof. K.A. Berrington
- 1991 B.A. Experimental Physics Trinity College, University of Dublin, Ireland  
Dissertation: *Magnetic properties of Martian soil analogues, the Murchison and the  
Chassigny meteorites*, Advisor: Prof. J.M.D. Coey

**PUBLICATIONS - AARON ALAIN-JON GOLDEN**

Google Scholar Statistics Total citations: 2271 h-index: 28 i10-index: 48 Erdős Number: 3

**JOURNAL ARTICLES UNDER PEER-REVIEW**

1. Flynn, R., Alaswad, M., **Golden, A.**, Kleefeld, C., Foley, M., Moore, M., ‘Investigation into the radiobiological re-calculation of the DVH using EQD<sub>2</sub> for the addition of treatment plans with non-standard fractionation’, *Medica Physica* - (first revision submitted 30/03/2018)

**PUBLISHED PEER-REVIEWED JOURNAL ARTICLES**

78. Marcus, J., Bejerano-Sagie, M., Patterson, N., Bagchi, S., Verkhusha, V.V., Connolly, D., Goldberg, G.L., **Golden, A.**, Sharma, V.P., Condeelis, J., Montagna, C., ‘Septin 9 isoforms promote tumorigenesis in mammary epithelial cells by increasing migration and ECM degradation through metalloproteinase secretion at focal adhesions.’ - accepted to *Oncogene*
77. Demaerel, W., Hestand, M.S., Vergaelen, E., Swillen, A., López-Sánchez, M., Pérez-Jurado, L.A., McDonald-McGinn, D.M., Zackai, E., Emanuel, B.S., Morrow, B.E., Breckpot, J., Devriendt, K., Vermeesch, J.R., Antshel, K., Arango, C., Armando, M., Bassett, A., Bearden, C., Boot, E., Bravo-Sanchez, M., Breetvelt, E., Busa, T., Butcher, N., Campbell, L., Carmel, M., Chow, E., Crowley, T.B., Cubells, J., Cutler, D., Demaerel, W., Digilio, M.C., Duijff, S., Eliez, S., Emanuel, B., Epstein, M., Evers, R., Fernandez Garcia-Moya, L., Fiksinski, A., Fraguas, D., Fremont, W., Fritsch, R., Garcia-Minaur, S., **Golden, A.**, Gothelf, D., Guo, T., Gur, R., Gur, R., Heine-Suner, D., Hestand, M., Hooper, S., Kates, W., Kushan, L., Laorden-Nieto, A., Maeder, J., Marino, B., Marshall, C., McCabe, K., McDonald-McGinn, D., Michaelovsky, E., Morrow, B., Moss, E., Mulle, J., Murphy, D., Murphy, K., Murphy, C., Niarchou, M., Ornstein, C., Owen, M., Philip, N., Repetto, G., Schneider, M., Shashi, V., Simon, T., Swillen, A., Tassone, F., Unolt, M., van Amelsvoort, T., van den Bree, M., Van Duin, E., Vergaelen, E., Vermeesch, J., Vicari, S., Vingerhoets, C., Vorstman, J., Warren, S., Weinberger, R., Weisman, O., Weizman, A., Zackai, E., Zhang, Z., Zwick, M. ‘Nested Inversion Polymorphisms Predispose Chromosome 22q11.2 to Meiotic Rearrangements’. *Am. J. Hum. Genet.*, 101, 4:616-622, 2017.
76. Barnicle, A., Seoighe, C., Greally, J.M., **Golden, A.**, Egan, L.J. ‘Inflammation-associated DNA methylation patterns in epithelium of ulcerative colitis’. *Epigenetics*, doi: 10.1080 / 15592294.2017.1334023. [Epub ahead of print], 2017.
75. Pollack, R.M., Barzilai, N., Anghel, V., Kulkarni, A.S., **Golden, A.**, O’Broin, P., Sinclair, D.A., Bonkowski, M.S., Coleville, A.J., Powell, D., Kim, S., Moaddel, R., Stein, D., Zhang, K., Hawkins, M., Crandall, J.P. ‘Resveratrol Improves Vascular Function and Mitochondrial Number but Not Glucose Metabolism in Older Adults’. *J. Gerontol. A Biol. Sci. Med. Sci.*, doi: 10.1093/gerona/glx041. [Epub ahead of print], 2017.
74. Acosta, D., Ó Broin, P., Hollern, D., Greally, J.M., **Golden, A.**, Andrechek, E., Wood, T., Montagna, C. ‘Transcriptome profiling supports LPA receptor activity in enriched mammary epithelial cell populations during postnatal development’. *Scientific Reports*, 6:35810, 2016.
73. Barnicle, A., Seoighe, C., **Golden, A.**, Greally, J.M., Egan, L.J. ‘Differential DNA methylation patterns of homeobox genes in proximal and distal colon epithelial cells.’, *Physiol. Genomics*, 48, 4:257-73, 2016.

72. Takahashi, T<sup>\*</sup>, Okabe, S<sup>\*</sup>, Ó Broin, P<sup>\*</sup>, Nishi, A., Ye, K., Beckert, M.V., Izumi, T., Machida, A., Kang, G., Pena, J.L., **Golden, A.**, Kikusui, T., Hiroi, N. ‘Structure and function of neonatal social communication in a genetic mouse model of autism’, *Molecular Psychiatry* (\*denotes joint first author) 21(9):1208-14, 2016.
71. Nadel, J., Athanasiadou, R., Lemetre, C., Wijetunga, N.A., Ó Broin, P., Sato, H., Zhang, Z., Jeddloh, J., Montagna, C., **Golden, A.**, Seoighe, C., Grealley, J.M., ‘RNA:DNA hybrids in the human genome have distinctive nucleotide characteristics, chromatin composition, and transcriptional relationships’, *Epigenetics & Chromatin*, 8:46, 2015.
70. Gupta, A., Ó Broin, P., Bao, Y., Pullman, J., Kamal, L., Ajaimy, M., Lubetzky, M., Colovai, A., Schwartz, D., de Boccardo, G., **Golden, A.**, Akalin, E. ‘Clinical and molecular significance of microvascular inflammation in transplant kidney biopsies’. *Kidney International*, doi: 10.1038/ki.2015.276. [Epub ahead of print], 2015.
69. Nabet, B., Ó Broin, P., Reyes, J.M., Shieh, K., Lin, C.Y., Will, C.M., Popovic, R., Ezponda, T., Bradner, J.E., **Golden, A.**, Licht, J.D. ‘Deregulation of the Ras-Erk signaling axis modulates the enhancer landscape.’, *Cell Reports*, 12, 1-14, 2015.
68. Hallinan, G., Littlefair, S. P., Cotter, G., Bourke, S., Harding, L. K., Pineda, J. S., Butler, R. P., **Golden, A.**, Basri, G., Doyle, J. G., Kao, M. M., Berdyugina, S. V., Kuznetsov, A., Rupen, M. P., Antonova, A. ‘Magnetospherically driven optical and radio aurorae at the end of the stellar main sequence’. *Nature* 523, 568-571, 2015.
67. Delio, M., Patel, K., Maslov, A., Marion, R.W., McDonald, T.V., Cadoff, E.M., **Golden, A.**, Grealley, J.M., Vijg, J., Morrow, B., Montagna, C. ‘Development of a Targeted Multi-Disorder High-Throughput Sequencing Assay for the Effective Identification of Disease-Causing Variants’. *PLoS ONE*, 10, 7, 2015.
66. Ó Broin, P., Vaitheesvaran, P., Saha, S., Hartil, K., Chen, E.I., Goldman, D., Fleming, W.H., Kurland, I.J., Guha, C., **Golden, A.** ‘Intestinal Microbiota Derived Metabolomic Blood Plasma Markers for Prior Radiation Injury’ *International Journal of Radiation Oncology\*Biophysics\*Physics* 91(2):360-367, 2015.
65. Rhee, D.B., Croken, M.M., Shieh, K.R., Sullivan, J., Micklem, G., Kim, K., **Golden, A.** ‘toxomine: an integrated omics data warehouse for Toxoplasma gondii systems biology research’. *Database (Oxford)* 2015 Jun 30;2015:bav066. doi: 10.1093/database/bav066, 2015.
64. Kurland, I.J.<sup>\*</sup>, Ó Broin, P.<sup>\*</sup>, **Golden, A.**<sup>\*</sup>, Su, G., Meng, F., Liu, L., Mohny, R., Kulkarni, S., Guha, C. ‘Integrative Metabolic Signatures for Hepatic Radiation Injury’. (\* denotes joint first author) *PLoS ONE*, 10, 6:e0124795, 2015.
63. Kamal, L., Ó Broin, P., Bao, Y., Ajaimy, M., Lubetzky, M., Gupta, A., de Boccardo, G., Pullman, J., **Golden, A.**, Akalin, E. ‘Clinical, Histological, and Molecular Markers Associated With Allograft Loss in Transplant Glomerulopathy Patients’. *Transplantation*, 2015 Feb 11 (Epub ahead of print), 2015.
62. Ó Broin, P., Smith, T.J., **Golden, A.** ‘Alignment-free clustering of transcription factor binding motifs using a genetic-k-medoids approach’. *BMC Bioinformatics* 16(1):22, 2015.
61. Ó Broin, P., Hayde, N., Bao, Y., Calder, R.B., de Boccardo, G., Lubetzky, M., Ajaimy, M., Pullman, J., Colovai, A., Akalin, E., **Golden, A.** ‘A pathogenesis-based transcript signature in donor-specific antibody-positive kidney transplant patients with normal biopsies’. *Genomics Data*. 2(0):357-360, 2014.

60. Wijetunga, N.A., Delahaye, F., Zhao, Y.M., **Golden, A.**, Mar, J.C., Einstein, F.H., Greally, J.M., 'The meta-epigenomic structure of purified human stem cell populations is defined at cis-regulatory sequences', *Nature Communications*, 5:5195, 2014.
59. Vaitheesvaran, B., Hartil, K., Navare A., Zheng, C., Ó Broin, P., **Golden, A.**, Guha, C., Kurland, I.J., Bruce, J. E. 'Linking the gap between diabetes and cancer with IQGAP2: Role of the tumor suppressor in metabolic homeostasis.' *Metabolomics* 10(5):920-37, 2014.
58. Hayde, N., Ó Broin, P., Bao, Y., de Boccardo, G., Lubetzky, M., Ajaimy, M., Pullman, J., Colovai, A., **Golden, A.**, Akalin, E. 'Increased Rejection Associated Gene Transcripts in Biopsies of Donor-Specific Antibody Specific Positive Patients with Normal Biopsies', (advance online publication, 26 March 2014; doi:10.1038/ki.2014.75) *Kidney International*, 2014.
57. Lubetzky, M., Bao, Y., Ó Broin, P., Marfo, K., Ajaimy, M., Aljanabi, A., de Boccardo, G., **Golden, A.**, Akalin, E., 'Genomics of BK Viremia in Kidney Transplant Recipients' *Transplantation*, 97, 4:451-6, 2014.
56. Sparano, J.A., **Golden, A.**, Montagna, C. 'Translating the TCGA Breast Cancer Results Into Clinical Practice: Searching for Therapeutic Clues', *Oncology*, (Williston Park, N.Y.), 27, 12:1284, 1286, 2013.
55. Harding, L.K., Hallinan, G., Boyle, R.P., **Golden, A.**, Sheehan, B., Zavala, R.T., Butler, R.F. 'Periodic Optical Variability of Radio Detected Ultracool Dwarfs' *Astrophysical Journal*, 779, 1:21 21, 2013.
54. Harding, L.K., Hallinan, G., Konopacky, Q.M., Boyle, R.P., Butler, R.F., **Golden, A.** 'Spin-orbit alignment in the very low mass binary regime: The L dwarf tight binary 2MASSW J0746425+200032AB' *Astronomy & Astrophysics*, 554A, 113, 2013.
53. **Golden, A.**, Djorgovski, S.G., Greally, J.M., 'Astrogenomics: big data, old problems, old solutions?' *Genome Biology*, 14:129, 2013.
52. Geeleher, P., Egan, L.J., Hartnett, L., **Golden, A.**, Seoighe, C., 'Gene-set analysis is severely biased when applied to genome-wide methylation data' *Bioinformatics*, 29, 15:1851-7, 2013.
51. Bourke, S., van Langevelde, H.J., Torstensson, K., **Golden, A.** 'An AIPS-based Distributed Processing Method for Large Radio Interferometric Datasets' *Experimental Astronomy*, Volume 36, Issue 1-2, pp 59-76, 2013.
50. Hallinan, G., Sirothia, S., Antonova, A., Chandra, I., Doyle, J.G., Bourke, S., Hartman, J., **Golden, A.** 'Looking for a Pulse: A search for Rotationally Modulated Radio Emission from the Hot Jupiter, Tau Boötis b' *Astrophysical Journal*, 762, 34:4, 2013.
49. Antonova, A., Hallinan, G., Doyle, J.G., Yu, S., Kuznetsov, A., Metodieva, Y., **Golden, A.**, Cruz, K.L. 'Volume-limited radio survey of ultracool dwarfs' *Astronomy & Astrophysics*, 549, 14, 2013.
48. Geeleher, P., Huang, R.S., Gamazon, E.R., **Golden, A.**, Seoighe, C. 'The regulatory effect of miRNAs is a heritable genetic trait in humans' *BMC Genomics*, 13:383, 2012.
47. McLellan, A.S., Dubin, R.A., Jing, Q., Ó Broin, P., Moskowitz, D., Suzuki, M., Calder, R.B., Hargitai, J., **Golden, A.**, Greally, J.M. 'The Wasp System: an open source environment for managing and analyzing genomic data.' *Genomics*, 100(6):354-51, 2012.
46. Agoni, L., **Golden, A.**, Guha, C., Lenz, J. 'Neandertal and Denisovan retroviruses', *Current Biology*, 22, 11:R437-8, 2012.

45. Kuznetsov, A. A., Doyle, J. G., Yu, S., Hallinan, G., Antonova, A., **Golden, A.** ‘Comparative Analysis of Two Formation Scenarios of Bursty Radio Emission from Ultracool Dwarfs.’ *The Astrophysical Journal* 746, 99, 2012.
44. Yu, S., Doyle, J. G., Kuznetsov, A., Hallinan, G., Antonova, A., MacKinnon, A. L., **Golden, A.** ‘Electron-beam-induced Radio Emission from Ultracool Dwarfs’. *The Astrophysical Journal* 752, 60, 2012.
43. McDonald, J., O’Connor, P., de Burca, D., **Golden, A.**, Shearer, A. ‘Inverse mapping of polarized optical emission from pulsars: basic formulation and determination of emission altitude.’ *Monthly Notices of the Royal Astronomical Society* 417, 730-744, 2011
42. Yu, S., Hallinan, G., Doyle, J. G., MacKinnon, A. L., Antonova, A., Kuznetsov, A., **Golden, A.**, Zhang, Z. H. ‘Modelling the radio pulses of an ultracool dwarf.’ *Astronomy and Astrophysics* 525, A39, 2011.
41. Thomas, B.J., Rubio, E.D., Krumm, N., Ó Broin, P., Bomsztyk, K., Welsh, P., Grealley, J.M., **Golden, A.A.**, Krumm, A., ‘Allele-specific transcriptional elongation regulates monoallelic expression of the IGF2BP1 gene’. *Epigenetics & Chromatin*, 4:14, 2011
40. Doyle, J. G., Antonova, A., Marsh, M. S., Hallinan, G., Yu, S., **Golden, A.** ‘Phase connecting multi-epoch radio data for the ultracool dwarf TVLM 513-46546.’ *Astronomy and Astrophysics* 524, A15, 2010.
39. Kim, M.K., McGarry, T.J., Ó Broin, P., Flatow, J.M., **Golden, A.A.**, Licht, J.D. ‘An integrated genome screen identifies the Wnt signaling pathway as a major target of WT1’. *Proc. Natl. Acad. Sci. U.S.A.*, 106, 27:11154-9, 2009
38. Geeleher, P., Morris, D., Hinde, J.P., **Golden, A.**, ‘BioconductorBuntu - a Linux Distribution that Implements a Web-Based DNA Microarray Analysis Server’, *Bioinformatics*, 25(11):1438-9, 2009
37. McDonald, J., **Golden, A.**, Jennings, S.G. ‘OpenDDA: A Novel High-Performance Computational Framework for the Discrete Dipole Approximation’, *International Journal of High Performance Computing Applications*, 23, 42-61, 2009.
36. Oosterbroek, T., Gognard, I., **Golden, A.**, Verhoeve, P., Martin, D.D.E., Erd, C., Schulz, R., Stuewe, J.A., Stankov, A., Ho, T. ‘Simultaneous Absolute Timing of the Crab Pulsar at Radio and Optical Wavelengths’, *Astronomy and Astrophysics*, 488, 271, 2008.
35. Antonova, A., Doyle, J.G., Hallinan, G., Bourke, S., **Golden, A.**, ‘A Mini-survey of Ultracool Dwarfs at 4.9 GHz’, *Astronomy & Astrophysics*, 487, 317, 2008.
34. Hallinan, G., Antonova, A., Doyle, J.G., Bourke, S., Lane, C., **Golden, A.**, ‘Confirmation of the Electron Cyclotron Maser Instability as the Dominant Source of Radio Emission from Very Low Mass Stars’, *Astrophysical Journal*, 684, 644, 2008.
33. Lane, C., Hallinan, G., Zavala, R.T., Butler, R.F., Boyle, R.P., Bourke, S., Antonova, A., Doyle, J.G. Vrba, F.J. **Golden, A.**, ‘Rotational Modulation of M/L Dwarfs due to Magnetic Spots’, *Astrophysical Journal*, 668, L163, 2007
32. Antonova, A., Doyle, J.G., Hallinan, G., **Golden, A.**, Koen, C. ‘Sporadic Long-Term Variability in Radio Activity from a Brown Dwarf’, *Astronomy & Astrophysics*, 472, 257, 2007

31. Glass, J.L., Thompson, R.F., Khulan, B., Figueroa, M.E., Olivier, E.N., Oakley, E.J., Van Sant, G., Bouhassira, E.E., A Melnick, **Golden, A.**, Fazzari, M.J., Greally, J.M., ‘CG dinucleotide clustering is a species-specific property of the genome’, *Nucleic Acids Research*, V. 35, No. 20 6798-6807, 2007
30. Hallinan, G., Bourke, S., Lane, C., Antonova, A., Zavala, R.T., Briskin, W.F., Boyle, R.P., Vrba, F.J., Doyle, J.G., **Golden, A.**, ‘Periodic Bursts of Coherent Radio Emission from an Ultracool Dwarf’, *Astrophysical Journal*, 663, 25, 2007
29. Hallinan, G., Lane, C., Bourke, S., Antonova, A., Zavala, R.T., Briskin, W.F., Boyle, R.P., Vrba, F.J., Doyle, J.G., **Golden, A.**, ‘Pulsating Coherent Emission from Ultracool Dwarfs’, *Memorie della Societa Astronomica Italiana*, 78, 304, 2007
28. Hallinan, G., Antonova, A., Doyle, J.G., Bourke, S., Briskin, W.F., **Golden, A.** ‘Rotational Modulation of the Radio Emission from the M9 Dwarf TVLM513-46546: Broadband Coherent Emission at the Substellar Boundary?’, *Astrophysical Journal*, 653, 690, 2006
27. S Mahony, S., Benos, P.V., Smith, T.J., **Golden, A.** ‘Self-organizing neural networks to support the discovery of DNA-binding motifs.’, *Neural Networks*, 19(6-7): 950-62, 2006
26. **Golden, A.**, Bourke, S., Clyne, G., Butler, R.F., Shearer, A., Muxlow, T.W.B., Briskin, W.F., ‘A MERLIN Observation of PSR B1951+32 and Its Associated Plerion’, *Astrophysical Journal*, v. 635, p. L153-L156, 2005.
25. O’Connor, P., **Golden, A.**, Shearer, A. ‘Synchrotron Self-Absorption in Pulsar Magnetospheres: Implications for Optical Emission’, *Astrophysical Journal*, v. 631, p. 471-479, 2005.
24. Mahony, S., **Golden, A.**, Smith, T.J., Benos, P.V. ‘Improved detection of DNA motifs using a self-organized clustering of familial binding profiles.’, *Bioinformatics*, v. 21, Suppl 1:i283, 2005.
23. Mahony, S., Hendrix, D., **Golden, A.**, Smith, T.J., & Rokhsar, D.S., ‘Transcription factor binding site identification using the self-organizing map’, *Bioinformatics*, v. 21(9), p. 1807, 2005
22. Mahony, S., Hendrix, D., Smith, T., and **Golden, A.**, ‘Self-Organizing Maps of Position Weight Matrices for Motif Discovery in Biological Sequences’, *Artificial Intelligence Reviews*, 24:397-413, 2004.
21. Mahony, S., McInerney, J., Smith, T. and **Golden, A.**, ‘Gene prediction using the Self-Organising Map: automatic generation of multiple gene models’ *BMC Bioinformatics*, 5, 23, 2004.
20. Karpov, S., Bad’in, D., Beskin, G., Biryukov, A., Bondar, S., Chuntunov, G., Debur, V., Ivanov, E., Katkova, E., Plokhhotnichenko, V., Pozanenko, A., Zolotukhin, I., Hurley, K., Palazzi, E., Masetti, N., Pian, E., Nicastro, L., Bartolini, C., Guarnieri, A., Nanny, D., Piccioni, A., Brosch, N., Eichler, D., Shearer, A., **Golden, A.**, Redfern, M., Atteia, J.-L., Boer, M., ‘FAVOR (FAst Variability Optical Registration) - two-telescope complex for detection and investigation of short optical transients’, *Astronomische Nachrichten*, v. 325, p. 677, 2004.
19. Briskin, W., Thorsett, S.E., **Golden, A.**, Goss, W.M., ‘Radius and Distance Constraints for PSR B0656+14’, *Astrophysical Journal*, 593, L89, 2003
18. Thorsett, S.E., Benjamin, R.A., Briskin, W.F., **Golden, A.**, & Goss, W.M., ‘Pulsar PSR B0656+14, the Monogem Ring, and the Origin of the “Knee” in the Primary Cosmic-Ray Spectrum’, *Astrophysical Journal*, 592, L71, 2003
17. Shearer, A., Stappers, B., O’Connor, P., **Golden, A.**, Strom, R., Redfern, M., & Ryan, O., ‘Enhanced Optical Emission During Crab Giant Radio Pulses’, *Science*, 301, 493, 2003

16. Butler, R., O'Tuairisg, S., Shearer, A. & **Golden, A.**, 'Image PSF-matching and subtraction: a powerful astronomical technique and its application to industry', Proc. *SPIE*, Vol. 4877, p.201-212, 2003.
15. Butler, R. F., **Golden, A.** & Shearer, A., 'Detection of new optical counterpart candidates to PSR B1951+32 with HST/WFPC2', *Astronomy & Astrophysics*, v.395, p.845-851, 2002
14. **Golden, A.**, Butler, R., & Shearer, A., 'A Search for the Optical Counterpart to PSR 1821-24 in M28', *Astronomy & Astrophysics*, 371, 198, 2001
13. Shearer, A. & **Golden, A.**, 'Implications of the Optical Observations of Isolated Neutron Stars', *The Astrophysical Journal*, 547, 967, 2001
12. **Golden, A.**, Shearer, A., Beskin, G.M., Neizvestny, S.I., Neustroev, V.V., Plokhotnichenko, V.L., and Cullum, M., 'High Speed Phase-Resolved 2-d UBV Photometry of the Crab pulsar', *Astronomy and Astrophysics*, 363, 617, 2000
11. **Golden, A.**, Shearer, A., & Beskin, G., 'Unpulsed UBV Emission from the Crab Pulsar', *Astrophysical Journal*, 534, 12, 2000.
10. Edelstein, J., Seon, K-I., **Golden, A.**, & Min, K-W., 'Simultaneous EUVE/ROSAT Observations of PSR 0656+14', *Astrophysical Journal*, 540, 10, 2000.
9. **Golden, A.** & Shearer, A., 'Radius & Distance Estimates of the Isolated Neutron Stars Geminga & PSR 0656+14 using Optical Photometry', *Astronomy & Astrophysics*, 342, 5, 1999.
8. Shearer, A., O'Sullivan, C.M., **Golden, A.**, Garcia, P., Redfern, M., 1998, 'Time- Resolved Optical Observations of PSR B1509-58', *Astronomy & Astrophysics*, 333, 16, 1999.
7. Shearer, A., **Golden, A.**, O'Conner, P., Beskin, G., Redfern, M., 'Phase-Resolved Optical Emission from Isolated Neutron Stars', *Irish Astronomical Journal*, 1999 (July), 26(2), 99
6. Shearer, A., **Golden, A.**, Harfst, S., Butler, R., Redfern, R.M., O'Sullivan, C.M., Beskin, G.M., Neizvestny S., Neustroev V., Plokhotnichenko V., Cullum M., Danks, A., 1998, 'Possible Pulsed Optical Emission from Geminga', *Astronomy & Astrophysics*, 335, 21, 1998.
5. O'Sullivan, C.M., Shearer, A., Colhoun, M., **Golden, A.**, Butler, R., Redfern, M., 1998, 'A Search for the Optical Counterpart of PSR B1951+32', *Astronomy & Astrophysics*, 335, 991, 1998.
4. Shearer A., Redfern R. M., Gorman G., Butler R., **Golden, A.**, O'Kane P., Beskin G., Neizvestny S., Neustroev V., Plokhotnichenko V., Cullum, M., 1997, 'Pulsed Optical Emission from PSR 0656+14', *The Astrophysical Journal*, 487, L181, 1997.
3. Beskin, G., Plokhotnichenko, V., Bartolini, C., Guarnieri, A., Masetti, N., Piccioni, A., Shearer, A., **Golden, A.**, Auriemma, G., 'Catching the light curve of flaring GRBs: The opportunity offered by scanning telescopes', *Astronomy and Astrophysics Supplement*, v.138, p.589-590
2. Beskin, G., Shearer, A., **Golden, A.**, Bartolini, C., Guarnieri, A. Masetti, N., Piccioni, A., 'Catching the light curve of a flaring GRB. The opportunity offered by gravitational lensing', *Astronomy and Astrophysics Supplement*, v.138, p.587-588
1. Beskin, G., Shearer, A., **Golden, A.**, Bartolini, C., Guarnieri, A. Piccioni, A., Masetti, N., 'A possible connection between gamma-ray bursts and single black holes', *Astronomy and Astrophysics Supplement*, v.138, p.509-510

**PUBLISHED PEER-REVIEWED CONFERENCE PROCEEDINGS**

49. **Golden, A.**, Campbell, P., De Hora, P., Grogan, S., Hession, A., Mulvey, P., O’Gorman, S., Ó hÉanaigh, M., Spellacy, N., Stephens, J., Toner, J., ‘Connacht Schools Planetary Radio Telescope Network’, European Planetary Science Congress 2018, held 16-21 September 2018 at TU Berlin, Berlin, Germany, id.EPSC2018-1004, 2018
48. Rhee, D., Shieh, K., Sullivan, J., Micklem, G., Kami, K., **Golden, A.**, ‘ Understanding the Systems Biology of Pathogen Virulence Using Semantic Methodologies’, Proceedings of the 2016 IEEE Tenth International Conference on Semantic Computing (ICSC), 314-320, 2016.
47. Sharma, Y., Tchaikovskaya, T., Viswanathan, P., Rogler, C.E., Rhee, D.B., Ó Broin, P., Quispe, W., Maslov, A.Y., **Golden, A.**, Gupta, S., ‘Therapeutic Potential in Toxic Liver Injury of Exosomes Isolated from Healthy or Diseased Donors Depends on their Content with Capacity to Beneficially Regulate Cellular Gene Expression?. *Hepatology* 62:466A-467A, 2015.
46. Akten, S., Ajaimy, M., Ó Broin, P., Bao, Y., **Golden, A.**, Akalin, E., ‘Increased Cytotoxic and Regulatory T Cell and B Cell Associated Gene Transcripts in Transplant Kidney Biopsies With Non-Specific IFTA and Interstitial Inflammation?. *American Journal of Transplantation* 15 (2015)
45. Ajaimy, M., Ó Broin, P., Lubetzky, M., Bao, Y., **Golden, A.**, Akalin, E., ‘Molecular Features of Kidney Transplant Biopsies Without Allograft Injury in Relation With Type of Induction Therapy?. *American Journal of Transplantation* 15 (2015)
44. Kamal, L., Ó Broin, P., Bao, Y., **Golden, A.**, Akalin, E., ‘Molecular Features of Isolated Arteriolar Hyalinosis in Renal Transplant Biopsies?. *American Journal of Transplantation* 15 (2015)
43. Ajaimy, M., Ó Broin, P., Bao, Y., Lindower, J., **Golden, A.**, Akalin, E., ‘Differential Intragraft Gene Expression Profiles in Patients With Sterile Leukocyturia?. *American Journal of Transplantation* 15 (2015)
42. Ó Broin, P., Hiroi, N., **Golden, A.**, ‘ChIPSOM: Improved de novo motif discovery using a self-organizing map - a Tbx1 case study?. *Virtual Institute of Bioinformatics, Éire (VIBE 2015)*, Dublin (2015)
41. Nabet, B., Ó Broin, P., Reyes, J.M., Shieh, K., Lin, C.Y., Will, C.M., Popovic, R., Ezponda, T., Bradner, J.E., **Golden, A.**, Licht, J.D., ‘Deregulation of the Ras-Erk signaling axis modulates the enhancer landscape?. *American Association of Cancer Research Annual Meeting (AACR 2015)*, Philadelphia (2015)
40. Ó Broin, P., Takahashi, T., Okabe, S., Nishi, A., Izumi, T., Beckert, M., Kang, G., Pena, J.L., Tanigaki, K., Kikusui, T., Hiroi, N., **Golden, A.**, ‘Analysis of Ultrasonic Mouse Vocalizations in a 22q11.2DS-associated Mouse Model of Autism Spectrum Disorder?. *5th Annual Symposium in Computational Biology & Innovation* (2014), Dublin (2014)
39. Rhee, D.B., Shieh, K., Ó Broin, P., Gur, R.Q., **Golden, A.**, ‘The International Brain and Behavior Consortium Genomics Gateway?. *2014 Annual Conference on Extreme Science and Engineering Discovery Environment (XSEDE2014)*, New York (2014)
38. Gupta, A., Ó Broin, P., Bao, Y., **Golden, A.**, Akalin, E., ‘Clinical and Molecular Significance of Microcirculation Inflammation in Transplant Kidney Biopsies?. *Transplantation*. 98:139-139 (2014)
37. Kamal, L., Ó Broin, P., Bao, Y., **Golden, A.**, Akalin, E., ‘Increased Intragraft Endothelial Cell and Interferon-gamma Associated Transcripts and Banff Chronic Allograft Glomerulopathy (cg) Score Predict the Graft Loss in Transplant Glomerulopathy?. *Transplantation*. 98:468-469 (2014)



36. Sharma, Y., Tchaikovskaya, T., Viswanathan, P., Rhee, D.B., Ó Broin, P., Gorbacheva, T., Maslov, A.Y, **Golden, A.**, Gupta, S., 'Characterization of Exosomal microRNA (miRNA) Content Following Hepatic Injury and Roles in Cytoprotection After Uptake of Exosomes by Injured Hepatocytes?'. *Hepatology*. 60:825A-826A (2014)
35. Ó Broin, P., Kurland, I.J., **Golden, A.**, Guha, C., 'Metabolic Biomarkers for Radiation-Induced Liver Damage in Mice?'. 40th Annual Meeting of the European Radiation Research Society (ERR2013), Dublin (2013)
34. Kurland, I.J., Ó Broin, P., **Golden, A.**, Vaitheesvaran, B., Hartil, K., Saha, S., Guha, C., 'Integrative Metabolic Signatures for Radiation Induced Damage?'. 8th Annual International Meeting of the Metabolomics Society (Metabolomics 2012), Washington, DC (2012)
33. Ó Broin, P., Smith, T.J. **Golden, A.**, 'A Non-Tree Based Approach to Automated Construction of Familial Binding Profiles?'. RegGenSIG, Intelligent Systems in Molecular Biology (ISMB 2012), Long Beach (2012)
32. Samaraweera, L., Ó Broin, P., Liu, L., Suzuki, M., Band Horwitz, S., McDaid, H.M. 'Senescence Reversion Contributes to Acquired Drug Resistance?'. American Association for Cancer Research Annual Meeting (AACR 2012), Chicago (2012)
31. Shieh, K., Ó Broin, P., Rhee, D., Levy, M., **Golden, A.**, 'Using SAGA and the Open Science Grid to Search for Aptamers' Proceedings of the 2014 Annual Conference on Extreme Science and Engineering Discovery Environment, Article No. 27 ACM New York, NY, USA, 2014
30. Rhee, D., Calder, R.B., Shieh, K., Ó Broin, P., Hargitai, J., **Golden, A.**, "'Spring through the gateway': deploying genomic workflows with XSEDE', XSEDE '13 Proceedings of the Conference on Extreme Science and Engineering Discovery Environment: Gateway to Discovery, ACM New York, NY, USA, 2013.
29. **Golden, A.**, McLellan, A.S., Dubin, R.A., Jing, Q., Ó Broin, P., Moskowitz, D., Xhang, Z., Suzuki, M., Hargitai, J., Calder, R.B., Grealley, J.M., 'The Einstein Genome Gateway using WASP - A High Throughput Multi-Layered Life Sciences Portal for XSEDE', Proceedings of the 4th International Workshop on Science Gateways for Life Sciences, IOS Press, Amsterdam, 2012
28. Harding, L. K., Hallinan, G., Boyle, R. P., Butler, R. F., Sheehan, B., **Golden, A.** 'A Search for Periodic Optical Variability in Radio Detected Ultracool Dwarfs: A Consequence of a Magnetically-Driven Auroral Process?'. *Astronomical Society of the Pacific Conference Series* 448, 219, 2011
27. Boyle, R. P., Harding, L. K., Hallinan, G., Butler, R. F., **Golden, A.** 'An Investigation into the Periodic Optical Variability of Radio Detected Ultracool Dwarfs using the GUFU Photometer.' *Bulletin of the American Astronomical Society* #326.12, 2011
26. Antonova, A., Hallinan, G., Doyle, J. G., **Golden, A.** 'Investigating Magnetic Field Strengths and Topologies for Pulsing Ultracool Dwarfs: The M8.5 Dwarf TVLM 513-46546.' *Publications de l'Observatoire Astronomique de Beograd* 90, 117-120, 2010
25. Hallinan, G., Sirothia, S., Chandra, I., Doyle, J. G., Antonova, A., **Golden, A.** 'Looking for a Radio Pulse from Hot Jupiters.' *European Planetary Science Congress* 2010 413, 2010
24. Antonova, A., Doyle, J. G., Hallinan, G., **Golden, A.**, Bourke, S. 'Multi-frequency long-term monitoring of the ultracool dwarf TVLM 513-46546.' *Bulgarian Astronomical Journal* 14, 58, 2010

23. Hallinan, G., Doyle, G., Antonova, A., Bourke, S., Jardine, M., Donati, J.-F., Morin, J., **Golden, A.** 'Mapping the Radio Coronae of Cool Stars and Brown Dwarfs.' *American Institute of Physics Conference Series* 1094, 146-151, 2009
22. N McCoy, S Mahony, **Golden, A.**, 'Gene Prediction in Metagenomic Libraries Using the Self-Organising Map and High Performance Computing Techniques', *Distributed and Grid Computing in Computational Biology*, Vol 4360 (Springer), Lecture Notes in Computer Science, 2007
21. Hallinan, G., Lane, C., Bourke, S., Antonova, A., Zavala, R. T., Briskin, W. F., Boyle, R. P., Vrba, F. J., **Golden, A.** 'Pulsating coherent radio emission from ultracool dwarfs.' *Memorie della Societa Astronomica Italiana* 78, 304, 2007
20. Bourke, S., van Langevelde, H.J., Harvey-Smith, L., **Golden, A.**, 'Analysing very large datasets with ParselTongue', Proceedings 8th European VLBI Network Symposium, September 26-29, 2006, Torun, Proceedings of Science, p. 66
19. **Golden, A.**, Briskin, W.F., Thorsett, S.E., Benjamin, R.A., Goss, W.M., 'Implications of a VLBA Parallax for PSR B0656+14', *Baltic Astronomy*, Vol 14., p 436, 2005
18. Gubuzda, D., **Golden, A.**, 'A Radio Telescope for Ireland', *Baltic Astronomy*, Vol 14, p. 451, 2005
17. Ó Broin, P., Smith, T.J., **Golden, A.**, 'An Evolutionary Approach to Multiple Alignment of Transcription Factor Binding Motifs?. RECOMB Regulatory Genomics (RECOMB 2008), Boston, (2008)
16. Ó Broin, P., Smith, T.J., **Golden, A.**, 'Generating Familial Binding Profiles by Genetic Algorithm?. Virtual Institute of Bioinformatics, Éire (VIBE 2008), Maynooth (2008)
15. **Golden, A.**, Ó Broin, A., Mahony, S., Krumm, A., Greally, J.M., 'Optimum Transcription Factor Binding Site Model Selection from a Self-Organising Map ChIP-chip Case Study?. Intelligent Systems in Molecular Biology/European Conference on Computational Biology (ISMB/ECCB 2007), Vienna (2007)
14. Forde, K.P., Butler, R.F., Peat, D., **Golden, A.**, O'Tuairisg, S., 'Spectrophotometry: imaging with custom narrow-band filters and an automated data-reduction pipeline', Proceedings of the SPIE, Vo.5823, p 216, 2005
13. Mahony, S., **Golden, A.**, Smith, T.J., 'Bioinformatic identification of human labour-related genes using regulatory module scanning.' (2005) Royal Academy of Medicine in Ireland, Biomedical Sciences Winter Meeting. (presentation; abstracted as Irish J Med Sci 2005 174(1) 2:6).
12. Cunniffe, J., **Golden, A.**, G Simon, G., 'Self-Consistent Data Quality Recovery - A Study of the DENIS Photometric Calibration Archive', Proceedings Astronomical Data Analysis Software and Systems XV, October 2-5, 2005, San Lorenzo de El Esorial, ASP Conference Proceedings, Vol. 351. San Francisco: Astronomical Society of the Pacific, 2004., p.812
11. Murtagh, F., Egret, D., Longo, G., diGesù, V., Allen, G., Nunez, J., Molina, R., Llorente, I., Shearer, A., **Golden, A.**, Butler, R., Holl, A., Tsvetkov, M., Boyd, D., Sastry, L., Golev, V., Jetzer, P., & Csillaghy, A., 'iAstro: Computational and Information Infrastructure in the Astronomical DataGrid', Toward an International Virtual Observatory, Proceedings of the ESO/ESA/NASA/NSF Conference held in Garching, Germany, 10-14 June 2002. Edited by P.J. Quinn, and K.M. Gorski. ESO Astrophysics Symposia. Berlin: Springer, 2004, p. 296.

10. Voisin, B., Micol, A., O'Tuairisg, S., Butler, R., **Golden, A.**, & Shearer, A., 'Using a Reversed Exposure Time Calculator for Querying Uncalibrated Archives', Proceedings Astronomical Data Analysis Software and Systems XIII, October 12-15, 2003, Strasbourg, ASP Conference Proceedings, Vol. 314. San Francisco: Astronomical Society of the Pacific, 2004., p.812
9. O'Tuairisg, S., Butler, R., **Golden, A.**, Shearer, A., Voisin, B. & Micol, A., 'Automated Image Reduction and Analysis of Images from Multiple Data Archives', Proceedings Astronomical Data Analysis Software and Systems XIII, October 12-15, 2003, Strasbourg, ASP Conference Proceedings, Vol. 314. San Francisco: Astronomical Society of the Pacific, 2004., p.812
8. Cunniffe, J., Meurs, E. & **Golden, A.**, 'Efficient data-mining in the sky background', Proceedings Astronomical Data Analysis Software and Systems XIII, October 12-15, 2003, Strasbourg, ASP Conference Proceedings, Vol. 314. San Francisco: Astronomical Society of the Pacific, 2004., p.812
7. Demorest, P., Werthimer, D., Anderson, D., **Golden, A.**, & Ekers, R., 'A New Search for  $\mu$ s Time Scale Radio Pulses', Bioastronomy 2002: Life Among the Stars, Proceedings of IAU Symposium 213. Edited by R. Norris, and F. Stootman. San Francisco: Astronomical Society of the Pacific, 2003., p.479
6. **Golden, A.**, 'For now we see through the ISM, darkly' ...EUVE's view of Neutron Stars', in Continuing the Challenge of EUV Astronomy: Current Analysis and Prospects for the Future. ASP Conference Proceedings, Vol. 264. Edited by Steve B. Howell, Jean Dupuis, Daniel Golombek, Frederick M. Walter, and Jennifer Cullison. ISBN: 1-58381-104-4. San Francisco, Astronomical Society of the Pacific, p.4, 2002
5. Butler, R. F., **Golden, A.**, Shearer, A. & Gouiffes, C., 'PSR B1951+32 and PSR J0537- 6910 - where are the optical counterparts?' in Proceedings of the 270. WE-Heraeus Seminar on Neutron Stars, Pulsars, and Supernova Remnants. MPE Report 278. Edited by W. Becker, H. Lesch, and J. Trumper. Garching bei Munchen: Max-Plank- Institut fur extraterrestrische Physik, p.54, 2002
4. Shearer, A. & **Golden, A.**, 'Why study pulsars optically?' in Proceedings of the 270. WE-Heraeus Seminar on Neutron Stars, Pulsars, and Supernova Remnants. MPE Report 278. Edited by W. Becker, H. Lesch, and J. Trumper. Garching bei Munchen: Max-Plank-Institut fur extraterrestrische Physik, p.44, 2002
3. **Golden, A.**, Butler, R. F. & Shearer, A., 'Characterizing the Optical Counterpart to PSR B1951+32 in CTB 80', in Neutron Stars in Supernova Remnants, ASP Conference Series, Vol. 271, held in Boston, MA, USA, 14-17 August 2001. Edited by Patrick O. Slane and Bryan M. Gaensler. San Francisco: ASP, p.61
2. **Golden, A.**, Shearer, A., Browne, J., Butler, R., Penny, A., Nuth, J., 'A Virtual Laboratory model for coordinating future astrobiological research' in Proceedings of the First European Workshop, 21 - 23 May 2001, ESRIN, Frascati, Italy. Eds.: P. Ehrenfreund, O. Angerer & B. Battrick. ESA SP-496, Noordwijk: ESA Publications Division, ISBN 92-9092-806-9, 2001, p. 341 - 344
1. **Golden, A.** and Traeger, S. (eds.), 1998, 'GHOST - Galactic Halo Object Telescope', Fundamental Physics In Space, *European Space Agency SP-420*.

## BOOK CHAPTERS

1. Thomas, B.J., Rubio, E.D., Krumm, N., Ó Broin, P., Bomszyk, K., Welch, P., Grealley, J.M., **Golden, A.**, Krumm, K. 'Chromatin Signature? In: 'Epigenetics, Environment, and Genes?. (ed. Sun Woo Kang), Apple Academic Press (2013)

**ABSTRACTS, CONFERENCE REPORTS & POSTER CONTRIBUTIONS**

38. Dulaimi, S., Boyle, R.P., Fitzgerald, K., **Golden, A.**, Butler, R.F., 'Untangling the light-curves of the brown dwarf binary J0746+20', Cambridge Workshops of Cool Stars, Stellar Systems and the Sun, July 29 - Aug 3 2018, Boston / Cambridge, USA (2018)
37. **Golden, A.**, 'InterMine as a Science Gateway for Systems Biology', 9th International Workshop on Science Gateways (IWSG 2017) Poznan, Poland June 19-21 (2017)
36. Rhee, D., Croken, M., Hargitai, J., Micklem, G., Kim, K., **Golden, A.**, 'The Development of a Toxoplasma gondii Systems Biology Data Management and Dissemination Core', XSEDE13, San Diego, California July 21-25 (2013)
35. Ó Broin, P., Smith, T.J., **Golden, A.**, 'A Non-Tree Based Approach to Automated Construction of Familial Binding Profiles', ISMB 2012. Long Beach, California July 15-17 (2012)
34. Kurland, I.J., Ó Broin, P., **Golden, A.**, Vaitheesvaran, B., Hartil, K., Saha, S., Guha, C., 'Integrative metabolic signatures for radiation induced damage', Metabolomics Society 8th Annual Meeting, Washington, D.C. (2012)
33. Boyle, R.P., Harding, L.K., Hallinan, G., Butler, R.F., **Golden, A.**, 'An Investigation into the Periodic Optical Variability of Radio Detected Ultracool Dwarfs using the GUFU Photometer' American Astronomical Society, AAS Meeting 218 (2011)
32. Ó Broin, P., Smith, T.J., **Golden, A.**, 'An Evolutionary Approach to Multiple Alignment of Transcription Factor Binding Motifs', RECOMB Regulatory Genomics 2008, Boston.
31. Ó Broin, P., Smith, T.J., **Golden, A.**, 'Generating Familial Binding Profiles by Genetic Algorithm', VIBE 2008, Maynooth.
30. **Golden, A.**, Ó Broin, P., Mahony, S., Krumm, A., Greally, J.M., 'Optimum Transcription Factor Binding Site Model Selection from a Self-Organising Map - a ChIP-chip Case Study'. (2007) ISMB/ECCB2007, Vienna, 21-25 July 2007 (poster)
29. Fleming, R.M.T., **Golden, A.**, Nasheuer, H.-P. 'Thermodynamically constrained steady state solution space of the E. coli metabolic network'. (2007), *from BioSysBio 2007: Systems Biology, Bioinformatics and Synthetic Biology Manchester, UK. 11-13 January 2007* BMC Systems Biology 2007, 1(Suppl 1):P15
28. McCoy, N., Mahony, S., **Golden, A.**, 'Genome-based clustering in wholegenome shotgun sequenced metagenomic assemblies using self organizing maps'. Metagenomics2007, UC San Diego, July 11-13 2007 (poster)
27. Hallinan, G., Bourke, S., Lane, C., Doyle, J.G., Antonova, A., Brisken, W.F., Zavala, R., Boyle, R., **Golden, A.**, 'Pulsed coherent radio emission from the substellar boundary.' Cool Stars 14, Pasadena, Nov 6-10 2006 (poster)
26. Bourke, S., Hallinan, G., **Golden, A.**, van Langevelde, H.J., Harvey-Smith, L., 'Automated Analysis of Radio Surveys for Ultracool Dwarfs.' Cool Stars 14, Pasadena, Nov 6-10 2006 (poster)
25. Bourke, S., van Langevelde, H.J., Harvey-Smith, L., **Golden, A.**, 'Analysing very large datasets with ParselTongue.' Proceedings of the 8th European VLBI Network Symposium, September 26-29, 2006 Torun Poland (presentation)

24. McCoy, N., Mahony, S. **A Golden, A.**: 'Gene prediction and genome-based clustering in wholegenome shotgun sequenced metagenomic assemblies using self organizing maps.'(2006) RECOMB, Venice April 2-5 2006 (poster)
23. **Golden, A.**, Mahony, S., Glass, J., Yu, S., Yin, M., Zheng, X., Grealley, J.M., 'Identification of transcription factor binding sites associated with imprinted genes using SOMBRERO.'(2005) ECCB, Madrid, Sept 28 - 1st Oct 2005 (poster).
22. Mahony, S., Benos, P.V., Smith, T.J., **Golden, A.**: 'SOMBRERO: Integrating self-organizing neural networks in the search for DNA binding motifs' (2005) Workshop on Self-Organizing Maps WSOM2005, Paris 5-8 2005 (presentation).
21. Mahony, S., **Golden, A.**, Smith, T.J., Benos, P.V., 'Improved detection of DNA motifs using a self organized clustering of familial binding profiles.' (2005) Intell. Sys. Mol. Biol. ISMB2005, Detroit, 25-29 June 2005 (presentation).
20. Grealley, J.M. **Golden, A.**, Mahony, S., Fazzari, M.J., 'Imprinted genes reside in large regions of distinctive genomic sequence features.' (2005) MRC meeting on Genomic Imprinting, Development & Disease, Oxford, March 2005 (presentation).
19. Mahony, S., **Golden, A.**, Smith, T.J., Benos, P.V., 'Clustering PSSMs and applications for familial binding profiles.'(2005) Annual symposium of the Virtual Institute for Bioinformatics Éireann (presentation).
18. Mahony, S., Hendrix, D., Smith, T.J., **Golden, A.**, 'Self-organizing maps of position weight matrices for motif discovery in biological sequences.' (2004) Conference on Artificial Intelligence and Cognitive Science, Dublin, 2004. (presentation).
17. Mahony, S., Hendrix, D., **Golden, A.**, Smith, T.J., Rokhsar, D.S., 'A self-organizing map of probability weight matrices for motif identification.' (2004) Intell. Sys. Mol. Biol. ISMB2004, Glasgow, July 31 - 4 August 2004. (poster).
16. Mahony, S., **Golden, A.**, Smith, T.J., 'Finding biological regulatory elements using the Self-Organizing Map.' (2004) Annual symposium of the Virtual Institute for Bioinformatics, Éireann (presentation).
15. Mahony, S., McInerney, J.O., Smith, T.J., **Golden, A.**, 'Identifying multiple gene models using the Self-Organizing Map.' (2004) Genomes2004, Cambridge (poster).
14. Mahony, S., Smith, T.J., McInerney, J.O., **Golden, A.**, 'A new approach to gene prediction using the Self-Organizing Map.' (2003) I.E.E.E. Computational Systems Bioinformatics, Stanford, August 2003 (poster).
13. Demorest, P., **Golden, A.**, Korpela, E., Werthimer, D., & Ekers, R., 'Serendipitous Detection of Radio Pulses from Evaporating Black Holes, GRBs and Extragalactic Supernova using SETI@home' in Astronomy, Cosmology & Fundamental Physics, ESO Astrophysics Symposia, Edited by P. Shaver, D. DiLella & A. Gimenez. ISBN: 3-540-40179-2. Springer-Verlag , 2003. (poster)
12. Mahony, S. Smith, T.J., McInerney, J.O., **Golden, A.**: 'Analysis of codon usage patterns using the Self-Organizing Map.' (2002) Annual symposium of the Virtual Institute for Bioinformatics, Éireann (presentation).
11. Mahony, S., **Golden, A.**, McInerney, J.O., 'Interpreting patterns of codon usage in bacterial genomes using the Self-Organizing Map.' (2002) ECCB2002, Sarbrucken (poster).

10. Mahony, S., **Golden, A.**, McInerney, J.O., ‘Gene prediction in *Neisseria meningitidis* using artificial intelligence methods.’ (2002) Annual symposium of the Irish Society for Scientific and Engineering Computation (presentation).
9. Gizani, N., Garrington, S., Lawson, D., Shearer, A., **Golden, A.** ‘MERLIN telescopes: New site RFI surveys and a possible new MERLIN Irish, radio telescope’ in *Astronomical Site Evaluation in the Visible and Radio Range*. ASP Conference Proceedings, Vol. 266. Edited by J. Vernin et al. ISBN: 1-58381-106-0. San Francisco, Astronomical Society of the Pacific, 2002 (poster)
8. O’Connor, P., **Golden, A.**, Shearer, A., & Eikenberry, S., ‘Reverse Engineering of Optical Pulsar Emission: Understanding Magnetospheric Processes’, to appear in *Proc. 20th Texas Symposium on Relativistic Astrophysics and Cosmology*, (ASP San Francisco) (poster)
7. **Golden, A.**, Shearer, A., & Beskin, G., 1999, ‘Unpulsed Optical Emission from the Crab Pulsar’, *Proceedings of IAU Colloquium 177 : ”Pulsar Astronomy - 2000 & Beyond”*, Ed. Kramer, Wex & Wielebinski, ASP Conf. Series. (poster)
6. **Golden, A.**, Shearer, A., & Edelstein, J., 1999, ‘PSR B0656+14: Combined Optical, X-ray & EUV Studies’, *Proceedings of IAU Colloquium 177 : ”Pulsar Astronomy - 2000 & Beyond”*, Ed. Kramer, Wex & Wielebinski, ASP Conf. Series. (poster)
5. Shearer, A., **Golden, A.**, & Beskin, G., 1999, ‘Implications of the Optical Observations of Isolated Neutron Stars’, *Proceedings of IAU Colloquium 177 : ”Pulsar Astronomy - 2000 & Beyond”*, Ed. Kramer, Wex & Wielebinski, ASP Conf. Series. (poster)
4. **Golden, A.**, Shearer, A., Beskin, G. & Redfern, M., 1998, ‘Unpulsed Optical Emission Studies: Geminga, PSRB0656+14 & the Crab’, *Proc. 19th Texas Symposium on Relativistic Astrophysics and Cosmology*, Eds. J. Paul, T. Montmerle & E. Aubourg (ASP San Francisco) (poster)
3. Shearer, A., **Golden, A.**, Beskin, G., O’Connor, P., Redfern, M., 1998, ‘Implications of Phase-Resolved Optical Emission from Isolated Neutron Stars’, *Proc. 19th Texas Symposium on Relativistic Astrophysics and Cosmology*, Eds. J. Paul, T. Montmerle & E. Aubourg (ASP San Francisco) (poster)
2. O’Connor, P, Shearer, A., **Golden, A.**, 1998, ‘Modeled results of pulsed optical emission from neutron stars’, *Proc. 19th Texas Symposium on Relativistic Astrophysics and Cosmology*, Eds. J. Paul, T. Montmerle & E. Aubourg (ASP San Francisco) (poster)
1. **Golden, A.**, Turner, M., & Hopkins, M., 1995, ‘Simulations of plasma ‘cooling’ by magnetic filters’, *Proc. Gaseous Electronics Conference, NIST, Maryland, USA, 1994*. (poster)

## AWARDS, HONORS

- 2001 International Astronomical Union approves naming of minor planet 11451 ‘Aarongolden’ in recognition of my contribution to pulsar astrophysics
- 1998 Education Abroad Program Scholarship to the Space Science Laboratory, UC Berkeley
- 1996 College of Science Postgraduate Fellowship, National University of Ireland Galway
- 1994 Israeli Academy of Sciences Postgraduate Fellowship (declined)

## MEMBERSHIPS OF PROFESSIONAL ORGANISATIONS

- 2012–present Member, American Astronomical Society
- Member, Working Group on Astroinformatics and Astrostatistics

- 2004–2012 New York Academy of Sciences  
 2003–present International Astronomical Union  
     Member of Division III, Commission 51 'Bio-Astronomy'  
     Member of Division XII, Commission 5 'Documentation & Astronomical Data'  
     Member of Division III, Commission 53, 'Extrasolar Planets (WGESP)'  
     Member of Division III, Planetary Systems Sciences  
 2001–2012 International Association for Pattern Recognition  
     *Technical Committee 13 'Pattern Recognition in Astronomy & Astrophysics'*  
 2001–present Fellow, Royal Astronomical Society

## EXTERNAL APPOINTMENTS

- 2019 Member, Irish Panel for selection of telescope time for the International LOFAR Telescope  
 2018 Expert Reviewer, European Commission Marie Skłodowska-Curie Individual Fellowships (MSCA-IF) 2017 call (Physics Panel)  
 2018 Reviewer, Time Allocation Committee, Giant Meterwave Radio Telescope, Tata Institute for Fundamental Research, Pune, India  
 2015 Scientific Reviewer/Consultant, NASA's Discovery 2014 Program (NNH14ZDA014O). Mission budget per proposal capped at \$450M  
 2014 NSF Extreme Science & Engineering Discovery Environment (XSEDE) Campus Champion for Albert Einstein College of Medicine & Yeshiva University  
 2014–present NASA Postdoctoral Fellowship Review Panel  
 2014–2016 Lead External Reviewer for NASA Maturation of Instruments for Solar System Exploration (MatISSE), MatISSE12-0027, Alian Wang (PI), The Washington University, 'A Compact Integrated Raman Spectrometer (CIRS)'  
 2014 Reviewer, Time Allocation Committee, Multi-Element Radio Linked Interferometer Network (e-MERLIN) array, Jodrell Bank Observatory, UK  
 2014 Member, New York Genome Center Working Group on Metagenomics & Infectious Diseases  
 2013 Review Panel, National Sciences & Engineering Research Council of Canada Discovery Frontiers: Advancing Big Data Science in Genomics Research  
 2013 Invited Focus Group Member, NSF 'Science Gateway Institute' Workshop  
 2013 Bioinformatics Standards & Protocols Subcommittee, New York Genome Center  
 2013 Review Panel, NASA NNH13ZDA001N-OSS ROSES 2013: Origins of Solar Systems  
 2013 Review Panel, NASA NNH13ZUA002N: Space Technology Research Opportunities - Early Stage Innovations  
 2013 Review Panel, NASA NESSF13: Earth & Space Science Fellowship  
 2013 Review Panel, NASA NNH12ZDA001N-MATISSE ROSES 2012: Maturation of Instruments for Solar System Exploration  
 2012 External Examiner, University of Cape Town, South Africa  
 2011–2015 Editorial Board, PLoS One  
 2013–2015 Editorial Board, Genomics  
 2010 Expert Evaluator, European Commission Framework Programme 7, FP7-KBBE-2010-3.5.04: *Microbial diversity and metagenomic mining for biotechnological innovation*  
 2010 U.K. Medical Research Council *Molecular and Cellular Medicine Grant Review Board*  
 2004 External Examiner, University of Porto, Portugal

- 2001–2005 Irish Representative, COST Action 283, *‘Computational and Information Infrastructure in the Astronomical Datagrid’*
- 1999– Journal Referee: Aging Cell, Artificial Intelligence Reviews, Astrobiology, Astronomy and Astrophysics, The Astrophysical Journal, Genome Research, Review of Modern Scientific Instruments, BMC Bioinformatics, BMC Genomics, Bioinformatics, Advances in Space Research, Artificial Intelligence in Medicine, Monthly Notices of the Royal Astronomical Society, PLoS One, BioMed Research International, Future Generation Computer Systems, Applied Soft Computing
- 2000 U.K. Particle Physics and Astronomy Research Council Referee, *MERLIN Time Allocation Committee*

## INTERNATIONAL CONSORTIA MEMBERSHIP

- 2017–present Science Team for POLLUX, a UV spectropolarimeter proposed for LUVOIR, the follow-on mission to the Hubble Space Telescope (PI: Jean-Claude Bouret, Laboratoire d’Astrophysique de Marseille, FR)
- 2019– Science Working Group for MAORY, the main adaptive optics module for the European Southern Observatory’s Extremely Large Telescope (PI: Emiliano Diolaiti, INAF Osservatorio Astronomico di Bologna, IT)

## PROGRAM COMMITTEE MEMBERSHIPS

- 2018–2019 Program Committee, Workshop on Clusters, Clouds and Grids for Health, In conjunction with CCGrid 2019 - 19th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, May 14-17, 2019, Larnaca, Cyprus
- 2016–2017 Steering Committee, Workshop on Clusters, Clouds and Grids for Life Sciences, 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, May 14-17, 2017, Madrid, Spain
- 2015–2016 Program Committee, 8th International Workshop in Science Gateways IWSG 2016, Rome, Italy - 8-10 June, 2016
- 2014–2015 Program Committee, 7th International Workshop in Science Gateways IWSG 2015, Budapest, Hungary - 3-5 June, 2015
- 2013–2014 Program Committee, 6th International Workshop in Science Gateways IWSG 2014, Trinity College Dublin - 3-5 June, 2014
- 2013–2014 Co-Chair & Program Committee, Workshop on Clusters, Clouds and Grids for Health, In conjunction with CCGrid 2014 - 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, May 26-29, 2014, Chicago, IL, USA
- 2013–2014 Program Committee of BIOIMAGING 2014: International Conference on Bioimaging, Eseo, Angers, Loire Valley, France, 3-6 March, 2014
- 2013–2014 Program Committee of PhyCS 2014: International Conference on Physiological Computing Systems, Lisbon, Portugal, 7-9 January, 2014
- 2013–2014 Program Committee of BIOSIGNALS 2014: International Conference on Bio-inspired Systems and Signal Processing, Eseo, Angers, Loire Valley, France, 3-6 March, 2014
- 2011–2012 Program Committee of BIOSIGNALS 2012: International Conference on Bio-inspired Systems and Signal Processing, Vilamoura, Portugal, February 1-4 2012
- 2008–2009 Program Committee of BIOSIGNALS 2009: International Conference on Bio-inspired Systems and Signal Processing, Porto Portugal, January 14-17 2009
- 2007–2008 Programme Committee, BIRD’08: 2nd International Conference on Bioinformatics Research and Development, TU Vienna, July 7-9 2008



- 2007-2008 Programme Committee, AICS-2008: the 19th Irish Conference on Artificial Intelligence and Cognitive Science, University College Cork, August 27-29 2008
- 2007-2008 Program Committee of BIOSIGNALS 2008: International Conference on Bio-inspired Systems and Signal Processing, Funchal, Madeira, Portugal, January 28-31 2008
- 2006-2007 Programme Committee, BIRD'07: 1st International Conference on Bioinformatics Research and Development, TU Munich, March 12-14 2007
- 2006-2007 Programme Committee, AICS-2007: the 18th Irish Conference on Artificial Intelligence and Cognitive Science, Dublin Institute of Technology, August 29-31 2007
- 2001-2005 Management Committee of EU funded COST Action 283 'Computational and information infrastructure in the Astronomical DataGrid'

## COMMERCIAL AFFILIATIONS

- 2001-2004 Director, Galway Imaging Ltd, *Commercialisation of astronomical imaging software for use by radiologists.*

## PATENTS

- 2014 'Host and intestinal microbiota derived metabolomic blood plasma markers for prior radiation injury' WO2016081292 A1 (*filed November 13<sup>rd</sup> 2015*)

## FUNDING HISTORY

- 2019 - Environmental Protection Agency STRIVE award, *GRACE Monitoring of Groundwater over Ireland (€ 88K)* PI
- 2019 - Environmental Protection Agency STRIVE award, *The Diversity and Resilience of kelp ecosystems in Ireland (€ 250K)* co-I
- 2018 - Royal Astronomical Society Education & Outreach Small Grants Scheme, *Connacht Schools Planetary Radio Telescope Network (£ 3K)* PI
- 2018 Athena Swan Midcareer Lecturer Capacity Building Grant (**€ 5K**)
- 2018 - Europlanet Outreach Funding Scheme 2018, *Connacht Schools Planetary Radio Telescope Network (€ 7.5K)* PI
- 2018 - Google Summer of Code *Natural Language Processing interface to InterMine (£ 500)*
- 2017 - Environmental Protection Agency STRIVE award, *Remote Sensing of Irish Surface Waters (€ 250K)* PI
- 2014 National Science Foundation, XSEDE Advanced Computing Infrastructure Award *Einstein Genome Gateway 300,000 compute hrs*, Co-I (PI:Hargitai)
- 2013 - 2016 International Consortium on Brain and Behavior in 22q11.2 Deletion Syndrome, *Collaborative R01 (5% salary support)* PI: Dr. R. Gur (U. Pennsylvania)
- 2011 - 2016 National Institutes of Health U19 Award *Stem Cell-Based Therapies for Mitigation of Acute Radiation Syndromes (\$11.54M)* Co-I (PI: Dr. C. Guha, Montefiore Medical Center)
- 2013 - 2016 National Institutes of Health U19 Award *Stem Cell-Based Therapies for Mitigation of Acute Radiation Syndromes: Metabolomic and Lipidomic Biofluid Markers for Radiation Injury Pilot Award (\$150k)* PI
- 2012 - 2016 The Paul F. Glenn Center for the Biology of Human Aging Research, *'The Glenn Foundation for Medical Research' (5% salary support)* PI: Dr. N. Barzilai
- 2009 - 2011 Teagasc Walsh Ph.D. Fellowship, *'Functional Genomics for Agriscience' (€ 63K)* PI

- 2008 - 2011 Hewlett-Packard/IRCSET Enterprise Ph.D. Fellowship, '*Integrative Genomics applied to High Throughput Prostate Cancer Data*' (€ 63K) PI
- 2008 Science Foundation Ireland Equipment Call, '*Next Generation DNA Sequencer*' (€ 558K) Co-I
- 2007 - 2009 Teagasc Walsh M.Sc. Fellowship, '*Design and Implementation of a web-based microarray system for Teagasc-Athenry*' (€ 41K) PI
- 2007 - 2010 Science Foundation Ireland Research Frontiers Programme (Astrophysics: 07/RFP/PHYF553), '*Investigating pulsed coherent radio emission at the substellar boundary and beyond - are brown dwarfs pulsar analogues?*' (€ 193K) PI
- 2006 - 2008 European Commission 'Marie-Curie Transfer-of-Knowledge' Development Programme 2005, '*Galway Laboratory for Biomedical Data Mining*' (€ 520K) Co-I
- 2005 - 2009 Science Foundation Ireland Research Frontiers Programme (Computer Science: 05/RFP/CMS0001), '*De-coding cis-regulatory modules in Human DNA using Artificial Intelligence Techniques*' (€ 160k) PI
- 2007 European Molecular Biology Organisation 'Short Term Fellowship' to EBI-EMBL, Hinxton, UK '*Probabilistic models applicable to genome annotation*' (€ 1.6k) PI
- 2004 Human Frontiers Science Programme '*Short Term Fellowship*' to Albert Einstein College of Medicine, NY (\$ 7.3K) PI
- 2004 Franco-Irish Collaboration Scheme '*Ulysses*' to the Paris Observatory (€ 3K) PI
- 2002 Enterprise Ireland International Collaboration Scheme to the National Radio Astronomy Observatory, Socorro, New Mexico, USA (€ 3.7K) PI
- 2002 Enterprise Ireland Ireland-Israel Collaboration Scheme to the Department of Physics & Astronomy, Tel Aviv University, Israel (€ 1.8K) PI
- 2002 European Commission FP5 Programme '*ASTROVIRTEL*' to European Southern Observatory (€ 5K) PI
- 2002 NUI Galway Millenium Fund, Small Project Grant '*Applying Neural Networks to Biomedical Data*' (€ 4K) PI
- 2001 - 2004 Enterprise Ireland Basic Research Scheme (Astrophysics), '*Studies of Pulsar/PlerionSupernova Remnant Interactions*' (€ 144K) PI
- 2001 - 2005 European Commission COST Action 283 '*Computational and Information Infrastructure in the Astronomical DataGrid*' (€ 53.5K) Co-I
- 2001 NUI Galway Millenium Fund, Small Project Grant '*Parallelisation of the Discrete Dipole Approximation for Light Scattering of particulates*' (€ 6K) PI
- 2000 NUI Galway Millenium Travel Fund, invited speaker at NASA's EUVE '*End of Mission*' Conference (€ 1.2K) PI
- 2000 NUI Galway Millenium Fund, Small Project Grant '*Thermal emission from Neutron Stars*' (€ 1.6K) PI

## INSTRUMENTATION DEVELOPMENT EXPERIENCE

- 2008–2010 Galway Ultra Fast Imager (GUFI) *L3CCD imaging system, using an Andor iXon back-illuminated CCD camera, with a readout time of ~ 2ms and capable of obtaining ~ 400 images/second. Designed and assembled at the Centre for Astronomy, NUI Galway*  
 Funded by Science Foundation Ireland (07/RFP/PHYF553)  
 Currently a Visiting Instrument at the Vatican Observatory, Mount Graham, AZ

**CYBERINFRASTRUCTURE EXPERIENCE**

- 2014-2016 XSEDE Campus Champion for Albert Einstein College of Medicine
- 2013-2014 XSEDE: Open Science Grid, Fermilab, IL, USA
- 2012-2013 XSEDE: Titan, Oak Ridge National Laboratory, TN, USA
- 2012-2013 XSEDE: Gordon, San Diego Computing Center, CA, USA
- 2012-2013 XSEDE: Trestles, San Diego Computing Center, CA, USA
- 2011 UV Altix 1000, Albert Einstein College of Medicine, Bronx, NY, USA
- 2007 Bull NovaScale 6320, Irish Centre for High Performance Computing, Ireland
- 2006 IBM Cluster 1350, Irish Centre for High Performance Computing, Ireland
- 2005 Clustervision 16 core, 32GB, 10TB cluster, National University of Ireland, Galway
- 1993 Cray X-MP, Rutherford Appleton Laboratory, Oxford, UK
- 1992-1993 Cray Y-MP, Queens University of Belfast, Northern Ireland
- 1987-1991 PDP-11, School of Mathematics, Trinity College Dublin, Ireland

**SOFTWARE DEVELOPMENT EXPERIENCE**

- 2015 *GMACS - uses genetic algorithm to cluster motif models (DNA, RNA or protein)*  
(Genomics)  
© Pilib Ó Broin, Ph.D.  
<http://goldenlab.org/projects/gmacs/index.html>
- 2013 *AIPSLite - an AIPS-based, distributed processing method for analyzing massive radio interferometric datasets* (Astronomy)  
© Stephen Bourke, Ph.D.  
<http://www-astro.physics.ox.ac.uk/~hrk/AIPSLite.py>
- 2009 *BioconductorBuntu - a custom distribution of Ubuntu Linux that automatically installs a server-side Bioconductor microarray processing environment & GUI front end*  
(Genomics)  
© Paul Geeleher, Ph.D.  
<http://bioinf.nuigalway.ie/bioconductorbuntu.html>
- 2009 *OpenDDA - a highly optimised computational framework for the Discrete Dipole Approximation applicable to calculating the optical properties of arbitrary geometrical targets* (Physics)  
© James Mc Donald, Ph.D.  
<http://www.opendda.org/>
- 2005 *SOMBRERO - finds regulatory binding sites by using a neural network algorithm called the "Self-Organizing Map" to find overrepresented motifs in a set of DNA sequences* (Genomics)  
© Shaun Mahony, Ph.D.  
<http://bioinf.nuigalway.ie/sombrero/index.html>
- 2004 *RescueNet - generates gene models based on clustering codon usage patterns in genomic DNA* (Genomics)  
© Shaun Mahony, Ph.D.  
<http://bioinf.nuigalway.ie/RescueNet/index.html>

**ASTRONOMICAL OBSERVING EXPERIENCE****Optical/Infrared Observatories**

*South African Large Telescope*, Sutherland Observatory, South Africa

*Gemini North*, Mauna Kea, Hawaii, USA

*Very Large Telescope*, Paranal, European Southern Observatory, Chile

*Bolshoi Teleskop Altazimuth*, Caucasus Mountains, Russian Federation

*William Herschel Telescope*, European Northern Observatory, La Palma, Canary Islands

*3.6m Telescope*, La Silla, European Southern Observatory, Chile

*United Kingdom Infrared Telescope*, Mauna Kea, Hawaii, USA

*Vatican Advanced Technology Telescope*, Vatican Observatory, Arizona, USA

*Nordic Optical Telescope*, European Northern Observatory, La Palma, Canary Islands

*Ritchey-Chretien Reflector*, US Naval Observatory, Flagstaff Station, Arizona, USA

*G.D. Cassini Telescope*, Loiano Observatory, University of Bologna, Italy

*Telescopio Nazionale Galileo*, European Northern Observatory, La Palma, Canary Islands

**Radio Observatories**

*Long Wavelength Array*, Socorro, New Mexico, USA

*High Sensitivity Array*, (Green Bank Telescope & Very Large Array, USA & Effelsberg, Germany)

*Arecibo Observatory*, National Astronomy & Ionosphere Center, Puerto Rico

*Very Large Array*, National Radio Astronomy Observatory, Socorro, New Mexico, USA

*Very Large Baseline Array*, National Radio Astronomy Observatory, Socorro, New Mexico, USA

*European Very Large Baseline Interferometric Array*, JIVE, Netherlands

*MERLIN Interferometric Array*, Jodrell Observatory, Manchester University, UK

*Westerbork Synthesis Radio Telescope*, ASTRON, Netherlands

*Ryle Telescope*, Mullard Radio Astronomy Observatory, Cambridge University

**Space Based Observatories**

*Extreme Ultraviolet Explorer*, Space Sciences Laboratory/NASA

*Kepler/K2 Observatory*, NASA/Laboratory for Atmospheric and Space Physics

**DOCTORAL SUPERVISION - COMPLETED**

- 2016 Kevin Shieh, M.D., Ph.D. *Computational studies of de novo motif discovery in aptamer selections.*  
Resident Physician (Internal Medicine), Maimonides Medical Center, Brooklyn, NY
- 2014 Pilib Ó Broin, Ph.D. *Machine Learning and High-Performance Computing: Infrastructure and Algorithms for the Genome-Scale Study of Genetic and Epigenetic Regulatory Mechanisms With Applications in Neuroscience.*  
Lecturer, School of Mathematics, Statistics & Applied Mathematics, NUI Galway
- 2012 Paul Geeleher, Ph.D. *Analysis of Gene Regulation using High Throughput Genomics.*  
Assistant Professor, Department of Computational Biology, St. Jude Children's Research Hospital, Memphis, TN
- 2012 Leon Karl Harding, Ph.D. *The Optical Signatures of Magnetospheric Phenomena at the End of the Main Sequence and Beyond.*  
Research Associate Professor, Center for Space Science & Engineering, Virginia Tech, VA

- 2012 Stephen Bourke, Ph.D. *High Resolution Astronomical Imaging using Radio Interferometry.*  
Senior Research Engineer, Department of Space, Earth and Environment, Onsala Space Observatory, Sweden
- 2011 Alan Fergus, Ph.D. *Computational Simulation of Boundary Layer Tracer Suspension & Dynamics.*  
Software Engineer, Ericsson Ireland Ltd., Athlone, Ireland
- 2009 Gregg Hallinan, Ph.D. *Radio Transient Emission from Ultracool Dwarfs.*  
Professor (with tenure), Department of Astronomy, Caltech
- 2008 Andrew McLellan, M.Sc. *Exploring Human Genome Repetitive Elements using Self Organising Maps.*  
Assistant Professor, Department of Genetics & Genomic Sciences, The Mount Sinai Hospital
- 2008 Paul Geeleher, M.Sc. *Design & Implementation of a Web-based Microarray Analysis System*  
(see above)
- 2008 Caoilfhionn Lane, Ph.D. *A Photometric Search for Magnetic Spots on Radio Transient Ultracool Dwarfs.*  
Postdoctoral Researcher, Insight Centre for Data Analytics, Galway, Ireland
- 2007 James Mac Donald, Ph.D. *OpenDDA - A Novel High-Performance Computational Framework for the Discrete Dipole Approximation.*  
Senior Software Engineer, Valeo Vision Systems, Tuam, Co. Galway, Ireland
- 2005 Shaun Mahony, Ph.D. *Self Organizing Neural Networks for Biological Sequence Analysis.*  
Assistant Professor, Depart. of Biochemistry & Molecular Biology, Penn State University
- 2004 Pádraig O'Connor, Ph.D. *Inverse Mapping of Nonthermal Optical Emission from Neutron Stars.*  
Project Manager, SQT Training, Plassey Tech. Park, Limerick, Ireland

## DOCTORAL SUPERVISION - IN PROGRESS

- 2017–present Salam Dulaimi, Doctoral Candidate working on high speed optical observations of nearby ultracool dwarfs (co-supervised with Dr. R.F. Butler, School of Physics)

## MASTERS SUPERVISION - COMPLETED

- 2018 - 2019 Laura Fahey (Biomedical Genomics) *Extending codon usage bias as a means to functionally identify hypothetical genes in pathogens*
- 2018 - 2019 Jack Mc Mahon (Biomedical Genomics) *Quantifying microbial communities in RNA & exome sequenced Prostate Cancers*
- 2018 - 2019 Olateju Idowu (Biomedical Genomics) *Profiling ERV Activity in Prostate Cancer*
- 2018 - 2019 Barry Digby (Biomedical Genomics) *Secondary metabolite cluster analysis in the genome of the thermophilic fungus *Rasamsonia emersonii**
- 2018 - 2019 Dalal Alsultan (Biomedical Genomics) *Identifying compounds in marine fungi that kill drug resistant cancers*
- 2018 - 2019 Tom Huxford (Medical Physics) *Assessing aptamer-conjugated gold nanoparticle radiosensitization*

**MASTERS SUPERVISION - IN PROGRESS**

- 2018 - 2019 Lydia King (Biomedical Genomics) *Karyotype Instability within Chromosome 11 in Breast Cancer*
- 2018 - 2019 Ella Lillis Greally (Biomedical Genomics) *Profiling ERV Activity in Prostate Cancer*
- 2018 - 2019 Ritasree Sengupta (Biomedical Genomics) *Loss of innate biosynthetic gene cluster diversity in the colorectal microbiome*
- 2018 - 2019 Brian Ó Sullivan (Computational Genomics) *Screening for radiosensitive gene expression profiles in prostate cancer*

**EXTERNAL EXAMINER APPOINTMENTS**

- 2016 External Examiner, Institute of Technology Tallaght/Cork Institute of Technology, Republic of Ireland, for the Ph.D. of Oisín Creanor '*Scientific Grid Computing: Large Catalogue Optimisation of Differential Photometry Fields*'
- 2012 External Examiner, University of Cape Town, South Africa, for the Ph.D. of Renaud Gaujoux '*Nonnegative Matrix Factorization: Tools and Application to Gene Expression De-convolution*'
- 2006 External Examiner, National University of Ireland, Merrion Square, Dublin, Ireland, for the NUI Travelling Scholarship (Science)
- 2004 External Examiner, Centro do Astrofísica, University of Porto, Portugal. Member of the Jury, M.Sc. Candidate R.N.A.S Barros '*Interferometric observations with the GI2T Interferometer. Commissioning of the multiple bandpasses spectrograph*'

**ADVISORY COMMITTEES - YESHIVA UNIVERSITY/ALBERT EINSTEIN COLLEGE OF MEDICINE**

- 2012–2015 Mingyan Lin (Advisor: Dr. D. Zheng)
- 2012–2016 Brandon Milholland (Advisor: Dr. J. Vijg/Dr. Y. Suh)
- 2012–2014 Matthew Croken (Advisor: Dr. K. Kim)
- 2012–2013 Lorenzo Agoni (Advisor: Dr. C. Guha)
- 2012–2014 Roberto Lleras (Advisor: Dr. T. Belbin)

**GRADUATE RESEARCH COMMITTEES - NATIONAL UNIVERSITY OF IRELAND GALWAY**

- 2019 Dave O'Leary, Earth & Ocean Sciences (Supervisor: Dr. E. Daly)
- 2018 Theo Trabac, School of Natural Sciences (Supervisor: Dr. A. De Menezes)
- 2017 Mariel Barbachan e Silva, School of Mathematics, Statistics & Applied Mathematics (Supervisor: Dr. P. Ó Broin)

**DOCTORAL EXAMINATION/THESIS COMMITTEES - YESHIVA UNIVERSITY/ALBERT EINSTEIN COLLEGE OF MEDICINE**

- 2015 Mingyan Lin, Genetics/Neurology (Advisor: Dr. D. Zheng) **Chair of Committee**
- 2015 N. Ari Wijetunga, Genetics (Advisor: Dr. J.M. Greally)
- 2014 Matthew Croken, Genetics (Advisor: Dr. K. Kim)
- 2013 Lorenzo Agoni, Radiation Oncology (Advisor: C. Guha)
- 2012 Esther Berko, Genetics (Advisor: Dr. J.M. Greally)

## FACULTY MENTORING COMMITTEES - YESHIVA UNIVERSITY/ALBERT EINSTEIN COLLEGE OF MEDICINE

- 2013 Jeremy Rosenblum, M.D., Assistant Professor of Pediatrics, Pediatric Hematology/Oncology, Children's Hospital at Montefiore
- 2012 Zhengdong Zhang, Ph.D., Assistant Professor, Department of Genetics, Albert Einstein College of Medicine

## UNIVERSITY SERVICE - YESHIVA UNIVERSITY/ALBERT EINSTEIN COLLEGE OF MEDICINE

- 2015 Member, Promotion Committee (Associate Professors)
- 2014 *Ad Hoc Chair*, Review of Promotion of D. Goffman M.D., to Associate Professor of Clinical Obstetrics & Gynecology and Women's Health.
- 2013–2015 Patent Committee, Voting Member
- 2012–2016 Course Coordinator, 1352 'Computational Genomics & Epigenomics'
- 2011–2015 IT Faculty Advisory Committee, HPC Core Advisory Committee
- 2012–2016 Medical Scientist Training Program (MSTP) Steering Committee

## UNIVERSITY SERVICE - NATIONAL UNIVERSITY OF IRELAND, GALWAY

- 2018 Internal Examiner for the Ph.D. examination of Laura Boyle "*Planet engulfment and the planetary nebula morphology mystery*" (School of Physics)
- 2018 Internal Examiner for the Ph.D. examination of Ngoc Thanh Nguyen "*Novel insights into allele-specific expression and translation in human lymphoblastoid cell lines through integrative analysis of transcriptomic and ribosome profiling data*" (School of Maths)
- 2018 – present Member of the College of Science Internationalisation Committee
- 2017 Internal Examiner for the Ph.D. examination of Éamonn Harvey "*Structure and Evolution of Classical Nova Shells.*" (School of Physics)
- 2017 Chair of the Examiners for the Ph.D. examination of Shirin Moghaddam "*Bayesian imputation of right censored data in time-to-event studies*" (School of Maths)
- 2016 Interim Head of the Discipline of Bioinformatics, School of Mathematics, Statistics & Applied Mathematics (due to sabbatical)
- 2016 Internal Examiner for the Ph.D. examination of Simone Coughlan "*Pathogen genomics of Methicillin resistant Staphylococcus aureus and Leishmania.*" (School of Maths)
- 2008–2011 Appointed as NUI Galway representative, Institute for Biomedical Informatics Graduate Board
- 2008–2011 Appointed to NUI Galway Advisory Committee for the Atlantic Universities Alliance (AUA) B.Sc. (Science & Technology)
- 2007–2008 Final Year 3rd B.A.(I.T.) Class Tutor & Final Year Project Coordinator
- 2006 External Examiner, NUI Travel Scholarship
- 2005–2007 NUI Galway representative, National Committee for Astronomy & Space Science, Royal Irish Academy
- 2005–2007 Course Director, B.A.(I.T.) Degree Programme
- 2005 Member, Interview Boards, Human Resources Office
- 2002–2011 Coordinator, Bioinformatics Research Group, Enabling Technologies Cluster National Centre for Biomedical Engineering Science, NUI Galway
- 2002–2005 Final Year 3rd B.A.(I.T.) Class Tutor & Final Year Project Coordinator
- 2001–2002 Course Director, B.A.(I.T.) Degree Programme
- 2000 University High Performance Computer Search Committee

- 1999–2009 Member, I.T. Departmental Library, Laboratory & Research Committees  
 1999–2007 Member, Standing Committee, Faculty of Arts  
 1999–2001 Final Year 3rd B.A.(I.T.) Class Tutor & Final Year Project Coordinator

### UNIVERSITY TEACHING - YESHIVA UNIVERSITY

- 2014-2015 MAT5270 'Data Science' M.A./Honors Undergraduate  
 2014-2015 MAT5272 'Applied Data Science' M.A./Honors Undergraduate  
 2013–2014 MAT5270 'Data Science' M.A./Honors Undergraduate

### UNIVERSITY TEACHING - YESHIVA UNIVERSITY/ALBERT EINSTEIN COLLEGE OF MEDICINE

- 2015–2016 'Genomics 101 for Medical Science Training Programme students' M.D./Ph.D.  
 2014–2015 'Genomics 101 for Medical Science Training Programme students' M.D./Ph.D.  
 2014–2015 1352 'Computational Genomics & Epigenomics' M.D./Ph.D., Ph.D.  
 2013–2014 'Genomics 101 for Medical Science Training Programme students' M.D./Ph.D.  
 2013–2014 1352 'Computational Genomics & Epigenomics' M.D./Ph.D., Ph.D.  
 2011–2012 1352 'Computational Genomics & Epigenomics' M.D./Ph.D., Ph.D.  
 2012–2013 1352 'Computational Genomics & Epigenomics' M.D./Ph.D., Ph.D.

### UNIVERSITY TEACHING - NATIONAL UNIVERSITY OF IRELAND, GALWAY

- 1999–2011 CT101 'Introduction to Software/Hardware' 1st B.Sc.(I.T.)  
 CT108 'Next Generation Technologies: Scientific Computing' 1st B.Sc.(I.T.)  
 CT213 'Computer Systems & Architecture' 2nd B.Sc.(I.T.)  
 CT223 'Operating Systems' 2nd B.E.(Elec. Comp. Eng)  
 CT211 'Next Generation Technologies: Scientific Computing' 2nd B.Sc.(I.T.)  
 CT229 'Programming II: Algorithms' 2nd BSc(IT), 2nd B.Sc. (Phys. Astron.)  
 CT245 'Technological Frameworks' 2nd B.A.(I.T.)  
 CT319 'Artificial Intelligence' 3rd B.A.(I.T.)  
 CT323 'Biomedical Systems: Microarray Technologies' 3rd B.Sc.(Biomed. Sci.)  
 CT560 'Biomedical Systems: Microarray Technologies' M.Sc.(Biomed. Sci.),  
 CT335 'Object Oriented Programming' 3rd B.A.(I.T.)  
 CT404 'Graphics and Image Processing' 4th B.Sc.(I.T.)  
 CT433 'Advanced Topics in IT: Genome Informatics' 4th B.Sc.(I.T.)  
 CT343/CT360 'Introduction to Genome Informatics' 3rd B.Sc.(I.T.)  
 CT861 'Computer Systems and Architecture' H.Dip./M.Sc. (Comp. Sci.), 3rd  
 B.A.(I.T.),M.IT.  
 CT866 'Networks & Communications' H.Dip./M.Sc. (Comp. Sci.), 3rd  
 B.A.(I.T.),M.IT.  
 CS424 'Software Engineering' 3rd B.Sc. (Comp. Sci.)  
 CS427 'Object Oriented Programming' 4th B.Sc. (Comp. Sci.)  
 MA113/MA228 'Statistics & Probability' 1st B.Sc. (Math. Sci.)
- 2001–2004 M11 'Interferometry and Other Techniques in Astronomy', European M.Sc. in  
 Astronomy, University of Porto
- 1999–2011 Supervised on average 3~4 H.Dip./B.Sc./B.A./B.E. final year projects per annum



- 2016–2017 MA170 ‘Introductory Programming for Biologists’ 1st B.Sc. (Biotech.), M.Sc. (Biomedical Genomics), Ph.D.  
 CS012 ‘Introduction to Computer Science’ 1st B.Sc. (undenominated)  
 MA5107 ‘Medical Genomics II - the Cancer Genome’ M.Sc. (Biomedical Genomics)
- 2017–2018 MA170 ‘Introductory Programming for Biologists’ 1st B.Sc. (Biotech.), M.Sc. (Biomedical Genomics), Ph.D.  
 MA5114 ‘Programming for Biologists’, M.Sc. (Biomedical Genomics), M.Sc. (Computational Genomics), Ph.D.  
 MA5108 ‘Statistics with R’, M.Sc. (Biomedical Genomics), M.Sc. (Computational Genomics), Ph.D.  
 MA5107 ‘Medical Genomics II - the Cancer Genome’ M.Sc. (Biomedical Genomics)
- 2018–2019 MA5114 ‘Programming for Biology’ M.Sc. (Biomedical Genomics)  
 MA5108 ‘Statistical Computing with R’ M.Sc. (Biomedical Genomics), M.Sc. (Computational Genomics)  
 MA5117 ‘Genomics Research Methods’ M.Sc. (Biomedical Genomics), M.Sc. (Computational Genomics)  
 MA324 ‘Introduction to Bioinformatics’ M.Sc. (Biomedical Genomics), M.Sc. (Computational Genomics), B.Sc. (Biomedical Science), M.Sc. (Cheminformatics and Toxicology), M.Sc. (Exercise Physiology and Application in Therapy), M.Sc. (Regenerative Medicine) , M.Sc. (Biomedical Science) , Ph.D. (Science, Medicine)

#### **UNIVERSITY TEACHING (VOLUNTARY) - NATIONAL UNIVERSITY OF IRELAND, GALWAY**

- 2017–2018 PH5105 ‘Physics of Radiation Therapy’ M.Sc. (Medical Physics)  
 2018–2019 PH5105 ‘Physics of Radiation Therapy’ M.Sc. (Medical Physics)

#### **INTERNS MENTORED**

- 2018 Jake McNeal, Elec. Eng. & Computer Science Senior, McGill University, Quebec (Google Summer of Code in coordination with the InterMine consortium, University of Cambridge)
- 2015 Rachel Shapiro, Mathematical Sciences Senior, Yeshiva University, NY
- 2015 Nicholas Groszewski, Elec. Eng. & Computer Science Junior, Duke University, NC
- 2015 Jason Schwartz, Mathematics Senior, Rutgers University, NJ
- 2014 Kundan Guha, Horace Mann Prep., Bronx, NY (Accepted to Columbia, Fall 2015)
- 2013 Kundan Guha, Horace Mann Prep., Bronx, NY
- 2012 Minyi Lee, Riverdale Country School, Bronx, NY (Accepted to MIT, Fall 2013)

#### **MEDIA ARTICLES ON RESEARCH ACTIVITIES**

- 22 July 2018 Mid & North West FM interview on the Connacht Schools Radio Planetary Telescope Network
- 20 July 2018 Mid & North West FM interview on the Connacht Schools Radio Planetary Telescope Network
- 20 July 2018 ‘Three Mayo schools to take part in Connacht Schools Planetary Radio Telescope Network’ Mayo Advertiser
- 18 July 2018 ‘Headford secondary school to receive hi-tech telescope’, The Tuam Herald

- 18 July 2018 'Three Galway schools to have telescopes installed as part of major European project to study Jupiter', Connacht Tribune
- 16 July 2018 'Irish Schools to Observe Jupiter with Installation of Planetary Radio Telescopes', [irishtecnews.ie](http://irishtecnews.ie)
- 20 July 2015 'New Horizons' Encounter With Pluto - Our Solar System's Missing Link', *Huffington Post*
- 22 April 2013 'Big data in modern biology', [opensource.com](http://opensource.com)
- 31 May 2007 'Brown Dwarf is a Radio Star', Irish Times
- 20 April 2007 'Dwarf stars emit powerful pulse' BBC News Website
- January 2005 'Exploring Genomes with the Self-Organising Map' *ERCIM News*, No. 60, 39-40
- April 1 2004 'Telescope plan to reach for the stars', Irish Times
- November 28 2002 'Building a virtual observatory', Irish Times
- April 11 2002 'Black Hole Hunt', Irish Times

### INVITED TALKS, SEMINARS

- April 13 2016 'How (and why) to talk mouse', Club Hour Computer Science Talk, Yeshiva University, New York, NY
- November 18 2015 'Evolutionary Learning and Einstein's Theory of General Relativity', Mathematics/Computer Science Colloquium, Yeshiva University, New York, NY
- February 17 2010 'Enriching and Identifying Genomic Signals using Neurodynamic Models of Cognition', Department of Genetics seminar, Albert Einstein College of Medicine, Bronx, NY
- November 17 2009 'Coping with the Deluge - using Self Organising Maps to Enrich ChIP-seq Data, Next Generation Sequencing Congress 16th-17th November 2009, Waldorf Hilton Hotel, London, UK
- April 16 2008 'CG Clustering in Genomes - an Alternative Approach to CpG Island Annotations', Departmental Seminar, IT Department, NUI Galway
- May 13 2005 'Motif Finding & Self Organising Maps', Institute for Molecular Biology Biotechnology, Iraklion, Crete, Greece
- March 7 2005 'Bioinformatics in Ireland and High End Computing', IBM Watson Research Laboratory, Yorktown Heights, NY
- February 22 2005 'Evolution in a Jar - some Computational "Gotchas" in Metagenomics', NUI, Galway Department of Information Technology Seminar Series
- January 24 2005 'Looks like a Planet yet flares like a Star - the Mystery of 'Coronally Active' Brown Dwarfs', University College Cork, Department of Physics Seminar Series
- March 17 2004 'Figuring out Pulsars with High Speed Optical Photometry' Invited Talk, Observatoire de Bordeaux, 17th March 2004
- January 10 2003 'Detection of Transient Radio Pulses from Evaporating Primordial Black Holes and Gamma Ray Bursts in the SETI@home Data Archive', Centro de Astrofisica da Universidade do Porto Seminar Series
- February 7 2003 'Gene Discovery using Self-Organising Map Neural Networks', NUI, Galway Department of Information Technology Seminar Series
- December 6 2002 'Aliens, Black Holes and Protein Folding - the Promise of BOINC', University College Dublin, Department of Computer Science Seminar Series
- January 10 2001 'Deconstructing Geminga's 'twin' - the photospheric emission of PSR B0656+14', Seminar, Centro de Astrofisica da Universidade do Porto
- July 23 2001 'For now we see through the ISM, darkly... - the Extreme Ultraviolet Explorer's view of Neutron Stars', Invited Talk, EUVE End of Mission Conference, Jenner, California

May 27 1997 'High time resolution with Triffid2', Invited Talk, Workshop on the Latest Developments in Gamma Ray Bursts, Elba, Italy

### **PUBLIC TALKS, OUTREACH ACTIVITIES**

January 26 2019 'Stellar coronal mass ejections & implications for life on exoplanetary systems', Galway Astronomy Club's 'Galway Astrofest 2019', Harbour Hotel, Galway, Ireland

March 16 2012 'Going to Moon to Look for the Cave of Dreams', Milton Elementary School Class KB, Rye, NY 10580

February 13 2010 'Has Earth contaminated the solar system? The case for life on Mars', Galway Astronomy Club, Astrofest 2010 Westwood Hotel, Galway, Ireland

April 23 2009 'Going to Moon to Look for the Cave of Dreams', Bubbles Creche & Montessorri, Ballymoneen Road, Galway, Ireland

October 28 2009 'Touching the Void - the strange world of Brown Dwarfs', Centre for Astronomy Outreach Talk, National University of Ireland Galway

November 11 2009 'Galileo and the International Year of Astronomy 2009', Gaelscoil Mhic Amhlaigh, An Coimin Mor, Cnoc Na Cathrach, Gaillimh, Éireann

April 16 2008 'Accelerated Computing Platforms and Scientific Computing', Computer Society, NUI Galway

February 6 2008 'Brown dwarfs and exoplanets', Irish Astronomy Association, Queens University of Belfast, Belfast, Northern Ireland

January 27 2007 'Observing in the twilight zone at the sub-stellar boundary - are brown dwarfs stars, pulsars or planets?', Galway Astronomy Club 'Astrofest 2007' Westwood Hotel, Galway, Ireland

November 27 2003 'Genes, Germs & Greenbacks - the World of Bioinformatics', Guest Speaker, NUI, Galway Computer Society

September 28 2003 'Understanding the Kink in the Cosmic Ray Energy Spectrum', Guest Speaker, Whirlpool Star Party, Birr Castle, Co. Offaly, Ireland

February 26 2003 'Origins, Grids and BOINC - High Performance Computing at NUI Galway', Guest Speaker, NUI, Galway Computer Society