

Mark Hereld
Publications

Papers in Refereed Journals

1. "Simulation of neocortical epileptiform activity using parallel computing", Drongelen W van, Lee HC, Hereld M, Jones, D, Cohoon, M, Elsen, F, Papka ME, and Stevens RL, *Neurocomputing* 58-60, pp.1203-1209, 2004.
2. "Simulation of neocortical activity", Drongelen W van, Hereld M, Lee HC, Papka ME, and Stevens RL, 2002 *Epilepsia* 43, Suppl 7: 149.
3. "Introduction to building projection-based tiled display systems", Mark Hereld, Ivan Judson, and Rick Stevens, *IEEE Computer Graphics and Applications*, July, 2000.
4. "Background modelling for deeper near-infrared imaging", Bernard J. Rauscher, David Barnaby, James P. Lloyd, Scott A. Severson, Doyal A. Harper, Mark Hereld, Robert F. Loewenstein, *Submitted to PASP*
5. "Near-infrared Extinction and Photometric Stability During the South Pole Winter", David Barnaby, Doyal A. Harper, Robert F. Loewenstein, Fred Mrozek, Mark Thoma, James P. Lloyd, Bernard J. Rauscher, Mark Hereld, and Scott A. Severson, 1999, *Submitted to PASP*
6. "The star formation histories of low surface brightness galaxies" by Eric F. Bell, David Barnaby, Richard G. Bower, Roelof S. de Jong, Doyal A. Harper, Jr., Mark Hereld, Robert F. Loewenstein and Bernard J. Rauscher: 2000, *MNRAS*, **312**, 470.
7. "The Stellar Populations of Low Surface Brightness Galaxies" by Eric F. Bell, Richard G. Bower, Roelof S. de Jong, Mark Hereld and Bernard J. Rauscher: 1999, *MNRAS*, **302**, 55L
8. "Near Infrared Halo Emission in the Edge-on Spiral Galaxy ESO~240-G11", Bernard J. Rauscher, James P. Lloyd, David Barnaby, Doyal A. Harper, Mark Hereld, Robert F. Loewenstein, Scott A. Severson, and Fred Mrozek 1998, *ApJ*, **506**, 116
9. "The South Pole near infrared sky brightness", H.T. Nguyen, Bernard J. Rauscher, Scott A. Severson, Mark Hereld, D. A. Harper, R.F. Loewenstein, F. Mrozek, and R.J. Pernic 1996, *P.A.S.P.* **108**, 718.
10. "The optical and near-infrared colors of galaxies I: The photometric data", Matthew Bershady, Mark Hereld, Richard G. Kron, David C. Koo, Jeffrey A. Munn, and Steven R. Majewski 1994, *Astronomical Journal* **108**, 870.
11. "Molecular hydrogen in the IRAS 03282+3035 stellar jet", John Bally, David Devine, Mark Hereld, and Bernard J. Rauscher 1993, *Ap.J.Letters* **418**, L75.
12. "Sub-arcsecond near infrared imaging of ultraluminous IRAS galaxies", S.R. Majewski, M. Hereld, D.C. Koo, G.D. Illingworth, and T.M. Heckman 1993, *Ap.J.* **402**, 125.
13. "Multifrequency observations of BL Lacertae in 1988", N. Kawai, M. Matsuoka, J.N. Bregman, H.D. Aller, M.F. Aller, P.A. Hughes, S.A. Balbus, T.J. Balonek, K.C. Chambers, R.E.S. Clegg, S.D. Clements, R.J. Leacock, A.G. Smith, J.S. Miller, M. Hereld, M.G. Hoare, V.A. Hughes, G.K. Miley, G.H. Moriarty-Schieven, K. Matthews, G. Neugebauer, T. Ohashi, P.F. Roche, H.A. Thronson, E. Valtoaja, H. Terasanta, J.R. Webb, R. Goodrich, B.J. Wills and D. Wills 1991, *Ap.J.* **382**, 508.
14. "HH 5, HH 6, and their exciting stars", Martin Cohen, Burton F. Jones, and Mark Hereld 1991, *Ap.J.* **371**, 237.
15. "A subdued interpretation of the visual and infrared emission from merging galaxies: Application to NGC 6240", Harley A. Thronson, Jr., S. Majewski, Lara Descartes, and Mark Hereld 1990, *Ap.J.* **364**, 456.
16. "Near-Infrared Images of NGC 1068: Bar-Driven Star Formation and the Circumnuclear Composition", Harley A. Thronson, Jr., Mark Hereld, Steve Majewski, Matthew Greenhouse, Paul Johnson, Earl Spillar, C. E. Woodward, D. A. Harper, and Bernard J. Rauscher 1989, *Ap.J.* **343**, 158.

17. "G70.7+1.2, a non-thermal bubble in a globule: nova, supernova remnant, or outflow?", John Bally, Marc W. Pound, Anthony A. Stark, Frank Israel, Naomi Hirano, Osama Kameya, Kazuyoshi Sunada, Masahiko Hayashi, Harley Thronson, Jr., and Mark Hereld 1989, *Ap.J.(Letters)*, **338**, L65.
18. "Molecular structure of the methyl anion CH_3^- . An investigation of the effects of electron correlation using the theory of self-consistent electron pairs (SCEP)." C.E. Dykstra, M. Hereld, R.R. Lucchese, H.F. Schaefer III, and M. Meyer 1978, *J. Chem. Phys.*, **67**, 4071.

Papers in Conference Proceedings

19. "Developing a petascale neural simulation," Mark Hereld, Rick L. Stevens, Wim van Drongelen, Hyong C. Lee, invited paper at 26th Annual International Conference of IEEE Engineering in Medicine and Biology Society (EMBS), San Francisco, CA, September 1-5, 2004.
20. "A Model of Neocortex: Interaction between Cellular Voltage-Sensitive Conductance and Network Parameters in a Model of Neocortex Can Generate Epileptiform Bursting," Wim van Drongelen, Hyong C. Lee, Mark Hereld, and Rick L. Stevens, invited paper at 26th Annual International Conference of IEEE Engineering in Medicine and Biology Society (EMBS), San Francisco, CA, September 1-5, 2004.
21. "Local methods for measuring tiled-display alignment", Mark Hereld, IEEE International Workshop on Projector-Camera Systems (PROCAMS-2003) – Posters, October 2003.
22. "DottyToto: A measurement engine for aligning multi-projector display systems", Mark Hereld, Ivan R. Judson, and Rick Stevens, Proceedings of the IEEE Conference on Projection Displays IX, Vol. 5002, ed. Ming Hsien Wu, Santa Clara, CA 2003.
23. "Simulation of neocortical epileptiform activity using parallel computing", Drongelen W van, Hereld M, Lee HC, Papka ME, and Stevens RL, Poster presented at Computational Neuroscience, Alicante, Spain, 2003.
24. "Next generation system software for future high-end computing systems", Guang R. Gao, Kevin B. Theobald, Ziang Hu, Haiping Wu, Jizhu Lu, Keshav Pingali, Paul Stodghill, Thomas L. Sterling, Rick Stevens, Mark Hereld, IPDPS 2002.
25. "Applying geometry and color correction to tiled display wall," J. Binns, G.Gill, M. Hereld, D. Jones, I. R. Judson, T. Leggett, A. Majumder, M. McCrory, M. E. Papka, R. Stevens, poster presented at Visualization 2002, Boston, MA, October 2002.
26. "Prophecy: automating the modeling process", Valerie Taylor, Xingfu Wu, Xin Li, Jonathan Geisler, Zhiling Lan, Mark Hereld, Ivan R. Judson and Rick Stevens, Third Annual International Workshop on Active Middleware Services (invited paper), San Francisco, CA, August 2001.
27. "Design and development of prophecy performance database for distributed scientific applications", Xingfu Wu, Valerie Taylor, Xin Li, Jonathan Geisler, Zhiling Lan, Rick Stevens, Mark Hereld and Ivan R. Judson, Proc. 10th SIAM Conference on Parallel Processing for Scientific Computing, March 2001.
28. "Prophecy: An infrastructure for analyzing and modeling the performance of parallel and distributed applications." Valerie Taylor, Xingfu Wu, Jonathan Geisler, Xin Li, Zhiling Lan, Rick Stevens, Mark Hereld, and Ivan R. Judson, In Proc. of the 9th IEEE International Symposium on High Performance Distributed Computing (HPDC 2000), IEEE Computer Society Press, August 2000.
29. "Developing tiled projection display systems", Mark Hereld, Ivan R. Judson, Joseph Paris, Rick L. Stevens, in Proceedings of the Fourth International Immersive Projection Technology Workshop, 2000.
30. "ActiveSpaces on the Grid: the construction of advanced visualization and interaction environments", Lisa Childers, Terry Disz, Mark Hereld, Randy Hudson, Ivan Judson, Robert Olson, Michael E. Papka, Joe Paris, and Rick Stevens, in Proceedings of PDC Annual Conference: Simulation and Visualization on the Grid, eds. B. Engquist, L. Johnsson, M. Hammill, and F. Short, Springer-Verlag, 2000.

31. "The Star Formation Histories of LSB Galaxies" by Eric F. Bell, Richard G. Bower, Roelof S. de Jong, Bernard J. Rauscher, D. Barnaby, D. A. Harper, Jr., Mark Hereld and R. F. Loewenstein: 1999, *IAU 171 Conference Proceedings* - "The Low Surface Brightness Universe", eds. J. I. Davies, C. Impey and S. Phillipps
32. "South Pole near infrared astronomy: Site characteristics and deep spiral galaxy imaging", Bernard J. Rauscher, David Barnaby, Doyal A. Harper, Mark Hereld, James P. Lloyd, Robert F. Loewenstein, Scott A. Severson, and Fred Mrozek, to appear in proceedings of *XXXIInd RENCONTRES DE MORIOND -- Extragalactic Astronomy in the Infrared*, 1997 March 15-22, Les Arc, Savoie, France.
33. "Evidence of 2.36 μm halo emission in the edge-on spiral galaxy ESO/Uppsala 240-G11", Bernard J. Rauscher, James P. Lloyd, Mark Hereld, David Barnaby, Scott A. Severson, R.F. Loewenstein, D.A. Harper, and Fred Mrozek 1996, *Dark and Visible Matter in Galaxies and Cosmological Implications -- Pub. A.S.P. Conference Series*, **117**, 274, eds. M. Persic and P. Salucci.
34. "SPIREX -- The first winter", Mark Hereld, Bernard J. Rauscher, Hien Nguyen, and Scott A. Severson 1994, in *CAM94 -- AIP Conference Series*, Cancun, Mexico, ed. Arnulfo Zepeda.
35. "The South Pole Infrared Explorer (SPIREX): Near infrared astronomy at the South Pole", Bernard J. Rauscher, Mark Hereld, Hien Nguyen, and Scott Severson 1994, in *Robotic Telescopes -- Pub. A.S.P. Conference Series*, **79**, 195, Phoenix, Arizona, ed. Russell M. Genet.
36. "SPIREX - Near infrared astronomy from the South Pole", Mark Hereld 1994, in *Infrared Astronomy with Arrays: The Next Generation*, Los Angeles, California, ed. Ian McLean, Kluwer:Dordrecht.
37. "The stellar and dust emission from NGC 6240 and M82 and the misapplication of analogy", Harley A. Thronson, Jr., Steve Majewski, Mark Hereld, and Lara Descartes 1990, in *Astrophysics with Infrared Arrays -- Pub. A.S.P. Conference Series*, ed. R. Elston.
38. "Sub-arcsec K band images of Arp 220 and Mkn 273", David C. Koo, Garth D. Illingworth, April Michel, Mark Hereld, Steven R. Majewski, and Timothy M. Heckman 1990, in *Astrophysics with Infrared Arrays -- Pub. A.S.P. Conference Series*, ed. R. Elston.
39. "Optical-infrared colors of a complete sample of field galaxies with spectroscopic redshifts", Matthew Bershad, Mark Hereld, Richard Kron, and David Koo 1990, in *Astrophysics with Infrared Arrays -- Pub. A.S.P. Conference Series*, ed. R. Elston.
40. "GRIM - A near-infrared grism spectrometer and imager", Mark Hereld, Bernard J. Rauscher, D.A. Harper, and Robert J. Pernic 1990, in *SPIE Vol. 1235 - Instrumentation in Astronomy VII, Tucson, Arizona*, 11-17 February 1990 ed. David L. Crawford, p.43.
41. "pNIC - A near-infrared camera for testing focal plane arrays", Mark Hereld, D.A. Harper, Robert J. Pernic, and Bernard J. Rauscher 1990, in *SPIE Vol. 1235 - Instrumentation in Astronomy VII, Tucson, Arizona*, 11-17 February 1990, ed. David L. Crawford, p.84.
42. "K band photometry of a complete sample of field galaxies with spectroscopic redshifts", M.A. Bershad, M. Hereld, R.G. Kron 1989, in *Galaxies, A.S.P. Centennial Meeting*, ed. R.G. Kron.
43. "HgCdTe focal plane arrays for low background astronomical applications", Mark Hereld and D.A. Harper 1986, in *SPIE Vol. 627 - Instrumentation in Astronomy VI (March 1986), Tucson, Arizona*, ed. D.L. Crawford, p.446.
44. "Tests of HgCdTe-on-sapphire focal plane arrays" Mark Hereld and D.A. Harper 1985, in *Proceedings of the Second Infrared Detector Technology Workshop (Aug. 1985), NASA Ames Research Center*, ed. Craig R. McCreight, NASA Technical Memorandum 88213.
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46. "Laser interferometric gravitational wave detectors" M. Hereld 1983, in *Proceedings of the International Conference on Lasers '83, San Francisco, California*, ed. Richard C. Powell (STS Press, 1985).

47. "Developments in laser interferometer gravitational wave detectors" R.W.P. Drever, S. Hoggan, J. Hough, A. Munley, G. Newton, H. Ward, D.Z. Anderson, Y. Gursel, M. Hereld, R. Spero and S.E. Whitcomb 1983, in *Proceedings of the Third Marcel Grossman Meeting on General Relativity, Shanghai, China*, ed. Hu Ning (Science Press and North-Holland Publishing Company, 1983).
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49. "Gravitational wave detectors using laser interferometers and optical cavities: 2. Some practical aspects and results" J. Hough, R.W.P. Drever, A. Munley, S.-A. Lee, R. Spero, S.E. Whitcomb, H. Ward, G. Ford, M. Hereld, N. Robertson, I. Kerr, J. Pugh, G. Newton, B. Meers, E. Brooks and Y. Gursel 1983, in *Quantum Optics, Experimental Gravity and Measurement Theory*, eds. Pierre Meystere and Marlan O. Scully (Plenum Publishing, 1983), pp. 515-524.
50. "Gravitational wave detectors using laser interferometers and optical cavities: 1. Ideas, principles and prospects" R.W.P. Drever, A. Munley, J. Hough, S.-A. Lee, R. Spero, S.E. Whitcomb, H. Ward, G. Ford, M. Hereld, N. Robertson, I. Kerr, J. Pugh, G. Newton, B. Meers, E. Brooks and Y. Gursel, 1983, in *Quantum Optics, Experimental Gravity and Measurement Theory*, eds. Pierre Meystere and Marlan O. Scully (Plenum Publishing, 1983), pp. 503-514.
51. "Optical cavity laser interferometers for gravitational wave detection" R.W.P. Drever, J. Hough, A.J. Munley, S.-A. Lee, R. Spero, S.E. Whitcomb, H. Ward, G. Ford, M. Hereld, N. Robertson, I. Kerr, I. Pugh, G. Newton, B. Meers, E. Brooks and Y. Gursel 1981, in *Proceedings of the Fifth International Conference on Laser Spectroscopy (VICOLS), Jasper, Canada* (Springer-Verlag, 1981), p.33.

Technical Reports

52. "Local Methods for Measuring Tiled Display Alignment," M. Hereld, Preprint ANL/MCS-P1072-0803, August 2003.
53. "Application Performance Evaluation of the HTMT Architecture," M. Hereld, I. R. Judson, R. Stevens, Technical Memorandum ANL/MCS- TM-258, January 2003.
54. "DotyToto: A measurement engine for aligning multi-projector display systems", Mark Hereld, Ivan R. Judson, and Rick Stevens, Argonne National Laboratory preprint ANL/MCS-P958-0502, May 29, 2002.
55. "ActiveSpaces on the Grid: The Construction of Advanced Visualization and Interaction Environments," L. Childers, T. Disz, M. Hereld, R. Hudson, I. Judson, R. Olson, M. Papka, J. Paris, and R. Stevens, Preprint ANL/MCS-P832-0600, June 2000.
56. "Introduction to Building Projection-based Tiled Display Systems," M. Hereld, I. Judson, and R. Stevens, Preprint ANL/MCS-P822-0500, May 2000.
57. "Developing tiled projection display systems", Mark Hereld, Ivan R. Judson, Joseph Paris, Rick L. Stevens, Argonne Preprint ANL/MCS-P824-0500, 2000.
58. "Prophesy: An automatic instrumentation and analysis infrastructure for the performance of parallel and distributed applications", Valerie Taylor, Xingfu Wu, Xin Li, Jonathan Geisler, Zhiling Lan, Rick Stevens, Mark Hereld and Ivan R. Judson, Technical Report, 2000.
59. "Implementation of a Distributed Multiterabyte Storage System," M. Hereld, B. Nickless, and R. Stevens, Technical Memorandum ANL/MCS-TM-235, October 1998.

Other Important Papers

60. "A search for gravitational radiation from PSR 1937+214" M. Hereld, Doctoral thesis, California Institute of Technology, 1984.