

## SELECTED RESEARCH PUBLICATIONS

1. C. Assad, J. C. Hanan, A. Csaszar, P. Moreels, C. L. Hughlett, T.-H. Chao, P. Perona, "A Low Cost Test-Bed for Real-Time Landmark Tracking." *Sensors and Systems for Space Applications*, (2007).
2. J. C. Hanan, P. Kayathi, C. L. Hughlett, "Position Estimation and Driving of an Autonomous Vehicle by Monocular Vision." *Optical Pattern Recognition XVIII*, SPIE (2007).
3. M. D. Demetriou, C. Veazey, Jan Schroers, J. C. Hanan, W. L. Johnson, "Thermo-plastic expansion of amorphous metallic foam" *Journal of Alloys and Compounds* (2006).
4. T.-H. Chao, J. C. Hanan, G. F. Reyes, H. Zhou, "Holographic memory using beam steering," *United States Patent #7,149,014*; Dec. 12, 2006.
5. H. A. Bale, J. C. Hanan, N. Tamura, "4-D XRD for Strain in Many Grains Using Triangulation" *Powder Diffr.* 21, 184 (2006).
6. C. Veazey, M. D. Demetriou, J. Schroers, J. C. Hanan, L. A. Dunning, W. F. Kaukler, W. L. Johnson, "Foaming of Amorphous Metals Approaches the Limit of Microgravity Foaming." *Advanced Materials and Processes* (2006).
7. S. Shiley, H. A. Bale, J. C. Hanan, E. Üstündag, J. N. Gray, Y. S. Chu, F. De Carlo, "Combined X-ray Tomography and Diffraction Analysis of Damage Evolution in Aluminum." *Synchrotron Radiation in Materials Science*, (2006).
8. Hrishikesh Bale, Jay C. Hanan, Nobumichi Tamura, "Triangulation Method for Grain Depth Measurement Using Polychromatic Micro-Beam Radiation." *Synchrotron Radiation in Materials Science*, (2006).
9. J. C. Hanan, H. Bale, J. E. Smay, Y. S. Chu, F. DeCarlo, "Combined Diffraction and Tomography Analyzing Controlled Residual Stress in Solid Freeform Fabrication." *Synchrotron Radiation in Materials Science*, (2006).
10. M. D. Demetriou, C. Veazey, J. Schroers, J. C. Hanan, W. L. Johnson, "Expansion evolution during foaming of amorphous metals." *Mater. Sci. and Eng. A*, (2006).
11. J. C. Hanan, J. Ma, C. Veasey, H. Lu, M. D. Demetriou, W. L. Jonson, "Microtomography and 3-Dimensional Stresses of Compressed Low-Density Amorphous Metal Foam." *TMS Letters* 3, 1 (2006) 9-10.
12. J. C. Hanan, J. E. Smay, F. DeCarlo, Y. Chu, "Microtomography of Solid Freeform Fabrication." *Rapid Prototyping*, 12, NO. 2 (2006).
13. H. A. Bale, J. C. Hanan, N. Tamura, "Average and Grain Specific Strain Resolved in Many Grains of a Composite Using Polychromatic Microbeam X-Rays." *Adv. X-Ray Anal.*, 49, (2005).
14. J. C. Hanan, M. D. Demetriou, C. Veazey, F. DeCarlo, J. S. Thompson "Microtomography of Amorphous Metal During Thermo-Plastic Foaming." *Adv. X-Ray Anal.*, 49, (2005), in press.
15. C. C. Aydiner, E. Ustündag, B. Clausen, J. C. Hanan, R. A. Winholtz, M. A. M. Bourke, A. Peker, "Residual stresses in a bulk metallic glass–stainless steel composite." *Materials Science and Engineering: A* 399, (2005), 107-113.
16. T. Lu, C. L. Hughlett, H. Zhou, T.-H. Chao, J. C. Hanan, "Neural network post-processing of grayscale optical correlator." *Optical Information Systems III*, SPIE Optics & Photonics (2005), 291-300.
17. J. C. Hanan, T.-H. Chao, C. Assad, C. L. Hughlett, H. Zhou, T. Lu, "Closed-Loop Automatic Target Recognition and Monitoring System" *Optical Pattern Recognition XVI*; SPIE 5816, p. 244-251, (2005).

18. H. Zhou, C. L. Hughlett, J. C. Hanan, T. Lu, T.-H. Chao. "Development of streamlined OT-MACH-based ATR algorithm for grayscale optical correlator" *Optical Pattern Recognition XVI; SPIE 5816*, p. 78-83, (2005).
19. T.-H. Chao, J. C. Hanan, H. Zhou, G. Reyes. "Portable 512 x 512 grayscale optical correlator." *Optical Pattern Recognition XVI; SPIE 5816*, 23-31, (2005).
20. J. C. Hanan, W. L. Johnson. A. Peker, "Advanced Metal Foam Lunar Habitats and Structures." *NASA NTR-41102* (2005).<sup>1</sup>
21. J. C. Hanan, W. L. Johnson, "Amorphous Metal Improving Performance and Deployment of Solar Sails." *Advanced Space Propulsion Workshop* (2004).
22. J. C. Hanan, C. L. Hughlett, H. Zhou, T.-H. Chao, "Grayscale Optical Correlator Work Bench" *NASA NTR-41021*(2004).<sup>2</sup>
23. J. C. Hanan, "Amorphous Metal for Improved Solar Sail" *NASA NTR-41096* (2004).
24. J. C. Hanan, S. Mahesh, E. Üstündag, I. J. Beyerlein, B. Clausen, D. W. Brown, M.A.M. Bourke, "Strain Evolution after Fiber Failure in a Single Fiber Metal Matrix Composite," *Mater. Sci. and Eng. A* **399**, 33-42 (2005).
25. J. C. Hanan, T.-H. Chao, P. Moreels, "Neural network tracker and extension of positive tracking periods." *Optical Pattern Recognition XV; SPIE 5437*, 233-237, (2004).
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27. T.-H. Chao, J. C. Hanan, H. Zhou, G. F. Reyes. "Portable 512x512 grayscale optical correlator" *Optical Pattern Recognition XV; SPIE, 5437*, 13-16, (2004).
28. H. Zhou, C. L. Hughlett, J. C. Hanan, T.-H. Chao. "On the development of filter management module for grayscale optical correlator" *Optical Pattern Recognition XV; SPIE, 5437*, p. 87-94, (2004).
29. S. Mahesh, J. C. Hanan, E. Üstündag, I. J. Beyerlein, "Shear-Lag Model for a Single Fiber Metal Matrix Composite with an Elasto-Plastic Matrix and a Slipping Interface," *Int. J. Solids Structures* **41**(15), 4197-4218, (2004).
30. J. C. Hanan, E. Ustundag, J. D. Almer, "A New Analysis Method for Two-Dimensional X-Ray Data." *Adv. X-Ray Anal.*, **47**, (2004).
31. T.-H. Chao, J. C. Hanan, G. F. Reyes, "High density high data rate holographic memory using a MEMS mirror beam steering device." *NASA NTR-40785* (2003).
32. J. C. Hanan, E. Ustundag, I. J. Beyerlein, G. A. Swift, J. D. Almer, U. Lineart, D. R. Haeffner, "Microscale damage evolution and stress redistribution in Ti-SiC fiber composites." *Acta. Mater* **51** (14): 4239-4250, Aug 15 (2003).
33. W. Fink, J. C. Hanan, T.-H. Chao, M. A. Tarbell, "Field-Deployable Integrated Air-Ground Multi-Agent Autonomous Remote Planetary Surface Exploration." *NASA NTR-40428* (2003).<sup>3</sup>
34. J. C. Hanan, H. Zhou, T.-H. Chao, "Precision of a radial basis function neural network tracking method," *SPIE, Optical Pattern Recognition XIV*, **5106**, 146-153 (2003).
35. J. C. Hanan, C. L. Hughlett, T.-H. Chao, "Radial Basis Function Neural Network Tracker." *NASA NTR-40071* (2003).
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<sup>1</sup> Received NASA Tech Brief Award

<sup>2</sup> Received NASA Tech Brief Award

<sup>3</sup> Received Tech Brief Award

37. J. C. Hanan, G. A. Swift, E. Üstündag, I. J. Beyerlein, B. Clausen, J. D. Almer, U. Lienert and D. R. Haeffner, "Damage Evolution in Ti-SiC Unidirectional Fiber Composites," *Adv. X-Ray Anal.*, **45**, 251-256 (2002).
38. J. C. Hanan, E. Üstündag, I. J. Beyerlein, G. A. Swift, B. Clausen, D. W. Brown and M. A. M. Bourke, "Elastic Strain Evolution in Single-Fiber Metal Matrix Composites Under Tensile Loading," *Adv. X-Ray Anal.*, **45**, 245-250 (2002).
39. J. C. Hanan, G. A. Swift, E. Üstündag, I. J. Beyerlein, J. D. Almer, U. Lienert and D. R. Haeffner, "Microscale Elastic Strain Evolution Following Damage in Ti-SiC Composites," *Metall. Mater. Trans. A* **33** (12): 3839-3845 Dec. (2002).
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44. S. Vogel, E. Üstündag, J. C. Hanan, V. W. Yuan and M. A. M. Bourke, "In-Situ Investigation of the Reduction of NiO by a Neutron Transmission Method," *Mat. Sci. and Eng., A* **333**, 1-9 (2002).
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48. S. Vogel, M. A. M. Bourke, J. C. Hanan, H. G. Priesmeyer and E. Üstündag, "Non-destructive In-Situ Real-Time Measurements of Structural Phase Transitions Using Neutron Transmission," *Adv. X-Ray Anal.*, **44**, 75-84 (2001).<sup>5</sup>
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<sup>4</sup> Received the J. B. Cohen Award for Best Student Paper at the Denver X-Ray Conference (2002).

<sup>5</sup> Received the inaugural J. B. Cohen Award for Best Student Paper at the Denver X-Ray Conference (2000).