

## Publications – Cristian Pantea

**PEER-REVIEWED PUBLICATIONS**

1. The acoustic nonlinearity parameter in Fluorinert up to 381 K and 13.8 MPa B.T. Sturtevant, C. Pantea, D.N. Sinha *J. Acoust. Soc. Am.*, vol. 138, issue 1, (2015), pp. EL31–35.
2. Broadband Unidirectional Ultrasound Propagation Using Sonic Crystal and Nonlinear Medium D.N. Sinha and C. Pantea *Emerging Materials Research*, vol. 2, issue EMR3, (2013), pp. 117–126.
3. Evaluation of the Transmission Line Model for Couplant Layer Corrections in Pulse–Echo Measurements B.T. Sturtevant, C. Pantea, D.N. Sinha *IEEE Trans. Ultrason., Ferroelect., Freq. Contr.*, vol. 60, No. 5, (2013), pp. 943–953
4. Determination of acoustical nonlinear parameter  $\beta$  of water using the finite amplitude method C. Pantea, C.F. Osterhoudt, D.N. Sinha *Ultrasonics*, vol. 53, no. 5, (2013), pp. 1012–1019.
5. An acoustic resonance measurement cell for liquid property determinations up to 250°C B.T. Sturtevant, C. Pantea, D.N. Sinha *Rev. Sci. Instrum.*, vol. 83, no. 11, (2012), art. no. 115106
6. Creating a collimated ultrasound beam in highly attenuating fluids B. Raeymaekers, C. Pantea, D.N. Sinha *Ultrasonics*, vol. 52, no. 4, (2012), pp. 564–570.
7. Manipulation of diamond nanoparticles using bulk acoustic waves B. Raeymaekers, C. Pantea, D.N. Sinha *J. Appl. Phys.*, vol. 109, (2011), pp. 014317.
8. High–pressure neutron diffraction studies at LANSCE Y. Zhao, J. Zhang, H. Xu, K.A. Lokshin, D. He, J. Qian, C. Pantea, L.L. Daemen, S.C. Vogel, Y. Ding, J. Xu *Appl. Phys. A: Mater. Sci. & Processing*, vol. 99, no. 3, (2010), pp. 585–599. Special Issue: “Emerging Applications of Neutron Scattering in Materials Science and Engineering”
9. Elastic constants of osmium between 5 and 300 K C. Pantea, I. Stroe, H. Ledbetter, J.B. Betts, Y. Zhao, L.L. Daemen, H. Cynn, A. Migliori *Phys. Rev. B*, vol. 80, no. 2, (2009), pp. 024112–1–10.
10. Bulk modulus of osmium, 4–300 K C. Pantea, I. Mihut, H. Ledbetter, J.B. Betts, Y. Zhao, L.L. Daemen, H. Cynn, A. Migliori *Acta Mater.*, vol. 57, iss. 2, (2009) p. 544–548
11. Diamond’s elastic stiffnesses from 322 K to 10 K A. Migliori, H. Ledbetter, R.G. Leisure, C. Pantea, J.B. Betts *J. Appl. Phys.*, vol. 104, no. 5, (2008), pp. 053512–1–4
12. Structure of diamond–silicon carbide nanocomposites as a function of sintering temperature at 8 GPa L. Balogh, S. Nauyoks, T. W. Zerda, C. Pantea, S. Stelmakh, B. Palosz, T. Ungar, *Mat. Sci. Eng. A*, vol. 487, no. 1–2, (2008), pp. 180–8.
13. Direct measurement of spin correlation using magnetostriction V.S. Zapf, V.F. Correa, P. Sengupta, C.D. Batista, M. Tsukamoto, N. Kawashima, P. Egan, C. Pantea, A. Migliori, J.B. Betts, M. Jaime, A. Paduan–Filho *Phys. Rev. B*, vol. 77, no. 2, (2008), pp. 020404(R)–1–4
14. Osmium’s Debye temperature C. Pantea, I. Stroe, H. Ledbetter, J.B. Betts, Y. Zhao, L.L. Daemen, H. Cynn, A. Migliori *J. Phys. Chem. Solids*, vol. 69, no. 1, (2008), pp. 211–213.
15. High–Temperature Phase Transitions in CsH<sub>2</sub>PO<sub>4</sub> under Ambient and High–Pressure Conditions: A Synchrotron X–ray Diffraction Study C.E. Botez, J.D. Hermosillo, J. Zhang, J. Qian, Y. Zhao, J. Majzlan, R.R. Chianelli, C. Pantea *J. Chem. Phys.*, vol. 127, (2007), pp. 194701–1–6
16. Alpha–plutonium’s polycrystalline elastic constants over its full temperature range A. Migliori, C. Pantea, H. Ledbetter, J. B. Betts, J. E. Mitchell, M. Ramos, F. Freibert, D. Dooley, S. Harrington, C. Mielke *J. Acoust. Soc. Am.*, vol. 122, no. 4, (2007), pp. 1994–2001.
17. Temperature and time–dependence of the elastic moduli of Pu and Pu–Ga alloys A. Migliori, I. Mihut, J.B. Betts, M. Ramos, C. Mielke, C. Pantea, D. Miller *J. Alloy. Compd.*, vol. 444–445, (2007), pp. 133–

137. 18. Investigation of relaxation of nanodiamond surface in real and reciprocal spaces B. Palosz, C. Pantea, E. Grzanka, S. Stelmakh, Th. Proffen, T.W. Zerda, W. Palosz *Diam. Relat. Mater.*, vol. 15, no. 11–12, (2006), pp. 1813.

19. Microstructure of diamond–SiC nanocomposites determined by X–ray line profile analysis J. Gubicza, T. Ungar, Y. Wang, G.A. Voronin, C. Pantea, T.W. Zerda *Diam. Relat. Mater.*, vol. 15, no. 9, (2006), pp. 1452.

20. Pressure–induced elastic softening of monocrystalline zirconium tungstate at 300 K C. Pantea, A. Migliori, P. B. Littlewood, Y. Zhao, H. Ledbetter, J. C. Lashley, T. Kimura, J. Van Duijn, and G. R. Kowach *Phys. Rev. B*, vol. 73, no. 21, (2006), art. no. 214118.

21. Evidence for a Structural Transition to a Superprotonic  $\text{CsH}_2\text{PO}_4$  Phase Under High Pressure C. E. Botez, R. R. Chianelli, J. Zhang, J. Qian, Y. Zhao, J. Majzlan, C. Pantea in *Materials in Extreme Environments*, edited by C. Mailhot, P.B. Saganti, D. Ila (Mater. Res. Soc. Symp. Proc. 929E, Warrendale, PA, 2006), 0929–II02–01.

22. Digital ultrasonic pulse–echo overlap system and algorithm for unambiguous determination of pulse transit time C. Pantea, D.G. Rickel, A. Migliori, J. Zhang, Y. Zhao, S. El–Khatib, R.G. Leisure, B. Li *Rev. Sci. Instrum.*, vol. 76, no. 11, (2005), art. no. 114902.

23. Kinetics of the reaction between diamond and silicon at high pressure and temperature C. Pantea, G.A. Voronin, T.W. Zerda *J. Appl. Phys.*, vol. 98, no. 7, (2005), art. no. 073512.

24. Kinetics of SiC formation during the high P–T reaction between diamond and silicon C. Pantea, G.A. Voronin, T.W. Zerda, J. Zhang, L. Wang, Y. Wang, T. Uchida, Y. Zhao *Diam. Relat. Mater.*, vol. 14, no. 10, (2005), pp. 1611.

25. Experimental Constraints on the Phase Diagram of Zirconium Metal J. Zhang, Y. Zhao, C. Pantea, J. Qian, L.L. Daemen, P.A. Rigg, R.S. Hixson, C.W. Greeff, G.T. Gray III, Y. Yang, L. Wang, Y. Wang, T. Uchida *J. Phys. Chem. Solids*, vol. 66, (2005), pp. 1213.

26. Thermal equations of state of  $\alpha$ ,  $\beta$ , and  $\gamma$  phases of zirconium Y. Zhao, J. Zhang, C. Pantea, J. Qian, L.L. Daemen, P.A. Rigg, R.S. Hixson, G.T. Gray III, Y. Yang, L. Wang, Y. Wang, T. Uchida *Phys. Rev. B*, vol. 71, no. 18, (2005), pp. 184119.

27. Yield Strength of  $\alpha$ –Silicon Nitride at High Pressure and High Temperature J. Qian, C. Pantea, J. Zhang, L.L. Daemen, Y. Zhao, M. Tang, T. Uchida, Y. Wang *J. Am. Ceram. Soc.*, vol. 88, no. 4, (2005), pp. 903.

28. Microstructure of nanocrystalline diamond powders studied by powder diffractometry B. Palosz, E. Grzanka, C. Pantea, T.W. Zerda, Y. Wang, J. Gubicza, T. Ungar *J. Appl. Phys.*, vol. 97, no. 6, (2005), pp. 064316.

29. Thermal equation of state of osmium: a synchrotron x–ray diffraction study G.A. Voronin, C. Pantea, T.W. Zerda, L. Wang, Y. Zhao *J. Phys. Chem. Solids*, vol. 66, no. 5, (2005), pp. 706.

30. Size and shape of crystallites and internal stresses in carbon blacks T. Ungar, J. Gubicza, G. Tichy, C. Pantea, T.W. Zerda *Compos Part A–Appl S*, vol. 36, (2005), pp. 431.

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33. High pressure effect on dislocation density in nano–size diamond crystals C. Pantea, J. Gubicza, T. Ungar, G.A. Voronin, N.H. Nam, T.W. Zerda *Diam. Relat. Mater.*, vol. 13, no. 10, (2004), pp. 1753.

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36. In situ x–ray diffraction study of silicon at pressures up to 15.5 GPa and temperatures up to 1073 K G.A. Voronin, C. Pantea, T.W. Zerda, L. Wang, Y. Zhao *Phys. Rev. B*, vol. 68, no. 2, (2003), pp. 020102.

37. In situ x–ray diffraction study of germanium at pressures up to 11GPa and temperatures up to 950K G.A. Voronin, C. Pantea, T.W. Zerda, J. Zhang, L. Wang, Y. Zhao *J. Phys. Chem. Solids*, vol. 64, no. 11, (2003), pp. 2113.

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41. Oriented growth of b–SiC on diamond crystals at high pressure G. Voronin, C. Pantea, T.W. Zerda *J. Appl. Phys.*, vol. 91, no.4, (2002), pp. 1957.

42. Partial graphitization of diamond crystals under high–pressure and high–temperature conditions J. Qian, C. Pantea, G. Voronin, T.W. Zerda *J. Appl. Phys.*, vol. 90, no. 3, (2001), pp. 1632.

43. Structure of carbon blacks T.W. Zerda, J. Qian, C. Pantea, T. Ungar *Mat. Res. Soc. Symp. Proc.*, vol. 661, (2001), pp. KK6.4.1.

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45. Enzimatic determination of urea in animal–origin whole blood and blood serum (Determinarea enzimatica a ureei din sange integral si ser sanguin de provenienta animala) I. Tarsiche, F. Kormos, C. Pantea *Rev Chim–Bucharest*, vol. 51, no. 1, (2000), pp. 8.

46. Redox sensors based on semiconductor film (Félvezető redoxi szenzor) F. Kormos, C. Pantea *Magy. Kem. Foly.*, vol. 105, no. 9, (1999), pp. 379.

47. Raman spectroscopic investigations of the  $x\text{CuO} \cdot (1-x)[3\text{B}_2\text{O}_3 \cdot \text{K}_2\text{O}]$  glasses D. Maniu, I. Ardelean, T. Iliescu, C. Pantea *J. Mater. Sci. Lett.*, vol. 16, (1997), pp. 19.

**BOOK CHAPTER** Development of high P–T neutron diffraction at LANSCE Y. Zhao, D. He, J. Qian, C. Pantea, K.A. Lokshin, J. Zhang, L.L. Daemen in *Advances in High–Pressure Technology for Geophysical Applications*, Elsevier, pp. 461–474, 2005 **LANL INTERNAL PUBLICATION** Filling the Gap in Plutonium Properties. Studies at Intermediate Temperatures and Pressures A. Migliori, A.J. Hurd, Y. Zhao and C. Pantea *Los Alamos Science*, vol. 30, (2006), pp. 86–89.

**CONFERENCE PROCEEDINGS**

1. Broad–band acoustic low frequency collimated beam for ultrasonic imaging C. Pantea, D.N. Sinha *Proceedings of Meetings on Acoustics (POMA)*, vol. 19, (2013), pp. 045058.

2. Broadband directional ultrasound propagation using sonic crystal and nonlinear medium D.N. Sinha, C. Pantea *Proceedings of Meetings on Acoustics (POMA)*, vol. 19, (2013), pp. 065047.

3. Determination of the Acoustic Nonlinearity Parameter in Liquid Water up to 250°C and 14 MPa B.T. Sturtevant, C. Pantea, D.N. Sinha *Proc. 2012 IEEE Int'l Ultrason. Symp.*, pp. 285–288.

4. Acoustic Nonlinearity in Fluorinert FC–43 C. Pantea, D.N. Sinha, C.F. Osterhoudt, P.C. Mombourquette *Proceedings of Meetings on Acoustics (POMA)*, vol. 6, (2009), pp. 045005–1–14.

5. Nano–Diamond compressibility at pressures up to 85 GPa C. Pantea, J. Zhang, J. Qian, Y. Zhao, A. Migliori, E. Grzanka, B. Palosz, Y. Wang, T.W. Zerda, H. Liu, Y. Ding,

P.W. Stephens and C.E. Botez Technical Proceedings of the 2006 Nanotechnology Conference and Trade Show, Vol. 1, (2006), pp. 823–826. **PRESENTATIONS**

1. Nuclear material identification using resonant ultrasound spectroscopy C. Pantea, T.A. Saleh, A. Migliori, J.B. Betts, E.P. Luther, D.B. Byler 167th Meeting of the Acoustical Society of America, Providence, RI, 5–9 May 2014
2. Broad-band Acoustic Low Frequency Collimated Beam for Ultrasonic Imaging C. Pantea and D.N. Sinha 21st International Congress on Acoustics, ICA 2013, Montreal, Canada, 2–7 June 2013
3. Acoustical Filters and Nonlinear Acoustic Wave Propagation in Liquids C. Pantea and D.N. Sinha 161st Meeting of the Acoustical Society of America, Seattle, WA, 23–27 May 2011
4. Acoustical shock formation in highly nonlinear fluids C. Pantea and D.N. Sinha Joint 159th ASA Meeting and Noise-Con 2010, Baltimore, MD, 19–23 April 2010
5. Nonlinear Acoustical Beam Formation and Beam Profiles in Fluids C. Pantea and D.N. Sinha 158th Meeting of the Acoustical Society of America, San Antonio, TX, 26–30 Oct 2009
6. Acoustic Nonlinearity in Fluorinert FC-43 C. Pantea, D.N. Sinha, C.F. Osterhoudt, P.C. Mombourquette 157th Meeting of the Acoustical Society of America, Portland, OR, 18–22 May 2009
7. Acoustic nonlinear beam formation and imaging C. Pantea Texas Christian University, Department of Physics and Astronomy, Fort Worth, TX, January 23, 2009
8. Negative-thermal-expansion ZrW<sub>2</sub>O<sub>8</sub>. Elasticity and pressure. C. Pantea, A. Migliori, P. B. Littlewood, Y. Zhao, H. Ledbetter, J. C. Lashley, T. Kimura, J. Van Duijn, and G. R. Kowach APS March Meeting 2007, March 5–9, Denver, CO.
9. Osmium's full elastic tensor between 5K and 300K C. Pantea 152nd Meeting (4th joint meeting of the Acoustical Society of America and the Acoustical Society of Japan), Honolulu, Hawaii, 28 November–2 December 2006
10. Pressure-induced elastic softening of monocrystalline zirconium tungstate at 300K C. Pantea MSCookies and Tea, LANL, August 2nd, 2006
11. Nano-Diamond compressibility at pressures up to 85 GPa C. Pantea, J. Zhang, J. Qian, Y. Zhao, A. Migliori, E. Grzanka, B. Palosz, Y. Wang, T.W. Zerda, H. Liu, Y. Ding, P.W. Stephens and C.E. Botez NSTI Nanotech 2006, May 7–11, Boston, MA.
12. Digital ultrasonic pulse-echo overlap system and algorithm for unambiguous determination of pulse transit time C. Pantea, D.G. Rickel, A. Migliori, J. Zhang, Y. Zhao, S. El-Khatib, R.G. Leisure, B. Li APS March Meeting 2006, March 13–17, Baltimore, MD.
13. Unusual compressibility in the negative-thermal-expansion material ZrW<sub>2</sub>O<sub>8</sub> C. Pantea, A. Migliori, P. B. Littlewood, Y. Zhao, H. Ledbetter, T. Kimura, J. Van Duijn, G. R. Kowach ICAM/I2CAM Annual Conference on Frontiers in Complex Adaptive Matter & Satellite Events November 8–12, 2005, Bishop's Lodge, Santa Fe, NM
14. Nano-Diamond compressibility at pressures up to 85 GPa C. Pantea, J. Zhang, J. Qian, Y. Zhao, B. Palosz, T.W. Zerda Stewardship Science Academic Alliances (SSAA) Program Symposium March 29–31, 2004, Albuquerque, NM.
15. Phase-coherent pulse-echo ultrasound in a SiC anvil pressure cell C. Pantea, D.G. Rickel, R.G. Leisure, A. Migliori, Y. Zhao Stewardship Science Academic Alliances (SSAA) Program Symposium March 29–31, 2004, Albuquerque, NM.
16. Diamond Composites and control of graphitization C. Pantea, J. Qian, G.A. Voronin, T.W. Zerda, Y. Zhao Industrial Materials For The Future (IMF), Annual Review Meeting June 23–25, 2003, Golden, CO.
17. Structure Study of Diamond-SiC Composites Obtained Under High Pressure-High Temperature Conditions C. Pantea, G.A. Voronin, T.W. Zerda, J. Qian, Y. Zhao APS March Meeting 2003, March 3–7, Austin, TX.
18. Diamond-silicon reaction under high pressure –

high temperature conditions C. Pantea, G.A. Voronin, T. W. Zerda MRCEDM Research Festival 2002, April 5, UTA, Arlington, TX. 19.  $\beta$ -SiC formation on diamond crystals under high pressure-high temperature conditions C. Pantea, G.A. Voronin, T. W. Zerda TSAPS Fall Meeting 2001, October 4-6, TCU, Fort Worth, TX. 20. X-ray diffraction study of diamond-graphite phase transition at high pressures and temperatures C. Pantea, J. Qian, T. W. Zerda TSAPS Fall Meeting 2000, October 27-29, Rice University, Houston, TX.