ARNOLD BURGER

Professor of Physics

Department of Life and Natural Science, School of Natural Sciences, Mathematics and Business, Fisk University
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EDUCATION

Ph.D. Materials Science, School of Applied Science & Technology, Hebrew University, Jerusalem, Israel, 1986
M.Sc. Materials Science, School of Applied Science & Technology, Hebrew University, Jerusalem, Israel, 1981
B.Sc. Physics-Math, Racah Institute, Hebrew University, Jerusalem, Israel, 1976

PROFESSIONAL EXPERIENCE

• Vice Provost for Academic Initiatives, 2010-present
• Special Assistant to the Provost for Academic Initiatives, 2008 - 2010
• Professor, Department of Physics, Fisk University, 2005-present
• Associate Director, NSF CREST Center for Physics and Chemistry of Materials, 2004-present
• Adjunct Professor of Physics, Department of Physics and Astronomy, Vanderbilt University, 2004-present
• Associate Professor, Department of Physics, Fisk University, 2002-2005
• Research Professor, Department of Physics, Fisk University, 1996-2002
• Research Associate Professor, Department of Physics, Fisk University, 1989-1996
• Research Fellow, Department of Physics, Fisk University, 1986 – 1989
• Research Assistant and Graduate Students Lab Instructor, School of Appl. Sci. & Technol., 1979-1986

HONORS AND AWARDS

• Fellow, SPIE – The International Society for Optical Engineering (elevated Dec. 2005)
• Co-recipient of the 2010 R&D 100 Award for "Development of Strontium Iodide Scintillator Material"
• Co-recipient of the 2001 R&D 100 Award for "Solid-State Radiation Materials and Detectors Based on II-VI Semiconductors"
• Co-recipient of the 1998 R&D100 Award *(R&D Magazine),* for "Development of a field-portable radiation monitoring device"
• Phi Beta Kappa, Honorary Member , elected and inducted May 2010

Co-Inventor

• Method of determination of the surface temperature of a growing crystal by measurements of the reflectivity spectrum, U.S. Patent 5,365,876
• Surface treatment of cadmium zinc telluride detectors , U. S. Patent 5,933,706
• Surface treatment and protection method for cadmium zinc telluride crystals, U.S. 6,524,966
• Ionizing Radiation Detector, U.S. Patent 6,649,915
• Surface Treatment and Protection Method for Cadmium Zinc Telluride Crystals, U.S. Patent 7,001,849
• GaTe Semiconductor for Radiation Detection, U.S. Patent 7,550,735
• Semiconductor Radiation Detector, U.S. Patent 7,687,780
• Barium Iodide and Strontium Iodide Crystals and Scintillators implementing the same, US Patent Application publication US 2010/0044576 A1

PROFESSIONAL ACTIVITIES

Peer-Reviewed Publication Summary

Number of Publications in Refereed Journals: 158 ; Papers in proceedings: 57; Number of Invited Publications and Book Chapters: 22 Number of Presentations:233

Editorial and Review Service

• Associate Editor – Journal of Crystal Growth (Nuclear Detector Crystals), 2009 –present
• Associate Editor – IEEE Transactions in Nuclear Science, (Room Temperature Solid State Detectors), 2005 –2008
• Senior Editor – IEEE Transactions in Nuclear Science, (Room Temperature Solid State Detectors), 2008 –pres.
• "X-Ray and Gamma-Ray Detectors and Applications IV Proceedings of SPIE" Eds. Ralph B. James, Larry A. Franks, Arnold Burger, Edwin M. Westbrook, Roger D. Durst, Vol. 4784, 414 pages; Pub. Jan 2003; Bellingham, WA, ISBN 0-8194-4551-7
• "Hard X-Ray and Gamma-Ray Detector Physics V Proceedings of SPIE", Eds. Larry A. Franks, Arnold Burger, Ralph B. James, Paul L. Hink , Vol. 5198, Publ. Jan 2004, Bellingham, WA, ISBN 0-8194-5071-5
• "Hard X-Ray and Gamma-Ray Detector Physics VI Proceedings of SPIE", Eds. Arnold Burger, Larry A. Franks, Ralph B. James, Publ. Jan 2005, Bellingham, WA, ISBN 0-8194-5478-8
• "Hard X-Ray and Gamma-Ray Detector Physics VII Proceedings of SPIE", Eds. Ralph B. James, Larry A. Franks, Arnold Burger, Vol. 5922, Publ. 2005, Bellingham, WA, ISBN 0-8194-5927-5
• "Hard X-Ray and Gamma-Ray Detector Physics VIII Proceedings of SPIE", Eds. Ralph B. James, Larry A. Franks, Arnold Burger, Vol. 6319, 2006, Bellingham, WA, ISBN 0-8194-6398-1
• Reviewer for Applied Physics Letters, Journal of Applied Physics, Journal of Electronic Materials, Journal of Crystal Growth, Thin Solid Films

Professional Society Membership

• Member of the SPIE's 2007 Engineering, Science and Technology Policy Committee (ESTeP) Committee
• Member, SPIE – The International Society for Optical Engineering
• Member, MRS – Materials Research Society
• Chairman of the Steering Committee of the SPIE International Technical Group on Penetrating Radiation, '99-'00

National and Advisory Committee Membership

• Member representative to the Board of the Association of Universities for Research in Astronomy (AURA)
• Independent Review Team Member for the National Nuclear Security Administration (NNSA), Office of Nonproliferation Research and Engineering; evaluated research programs at several national laboratories, 2003-pres.
• Review Panelist for NSF, NASA, DOE, DHS and DOD, 1997-present
• Member of the NASA Planetary Instrument Definition and Development Panel organized by GSFC, 1995-present
• Review Panel Member, Historically Black Colleges and Universities Nuclear Energy Training Program ('93, '94)

Scientific Meeting Organization

• Member of scientific committee, organizing committee, session chair and conference chair at several national and international meetings, symposia and tutorials (SPIE, MRS, E-MRS, URC-TC, IEEE), 1992-present

UNIVERSITY ACTIVITIES

• Chair, Fisk Faculty Assembly, 2007 –2008
• Member, Board of Trustees of Fisk University - Faculty Representative, 2007-present
• Member, President's Cabinet, 2007-present
• Member, Provost's Council, 2007-present
• Advisor, Dual Degree in Science and Engineering program, 2002-present
• Member, Strategic Balance Group
• Advisor, Summer REU Program, 1993-present
• Advisor, Graduate MA Thesis, 1986-present

SELECTED SYNERGISTIC ACTIVITIES

• Co-director of the Fisk Astronomy and Space Science Training (FASST) program (including outreach, jointly with Vanderbilt). The program was established under the NASA MUCERPI-03 grant, Arnold Burger –PI. Website: http://www.physics.vanderbilt.edu/fasst/ 2002-present
• Co-director of the of the Maters-to-PhD Bridge program (jointly with Vanderbilt) Website: http://www.physics.vanderbilt.edu/bridge 2002-present
• Coordinator of the Fisk/Vanderbilt Dual Degree in Science and Engineering Program, 2002-pres.
• Developed a website http://www.fisk.edu/~aburger/Published03_06/index.html containing instructional materials aimed at training summer intern students participating in materials science projects at Fisk and volunteered at local high school for science classes presentations, judge at the annual student science fairs

• Member of the team for Energetic X-Ray Imaging Survey Telescope (EXIST) in the Technical Working Group and in the Education & Public Outreach Working Group, see http://exist.gsfc.nasa.gov .
• Program coordinator and PI at Fisk University, as participants at the Center for Biophotonics Science and Technology, 2002-present.

BOOK CHAPTERS AND MONOGRAPHS

A. Burger, D. Nason, L. van den Berg and M. Schieber, "Semiconductors for Room Temperature X and Gamma Ray Detectors" in the Semiconductors and Semimetals Series, Chapter 5 Vol 43,) eds. T. E. Schlesinger and R. B. James, Academic Press, New York, 1995.
J. C. Lund and F. Olschner and A. Burger, "Semiconductors for Room Temperature X and Gamma Ray Detectors" in the Semiconductors and Semimetals Series, Chapter 12 (Lead Iodide) eds. T. E. Schlesinger and R. B. James, Academic Press, New York, 1995.
R. H. Page, L. D. DeLoach, K. I. Schaffers, F. D. Patel, R. J. Beach, S. A. Payne, W. F. Krupke and A. Burger, "Recent Developments in Cr+2-doped II-VI compound Lasers", OSA TOPS on Advanced Solid-State Lasers, Vol. 1, Optical Society of America, (1996) 130.
Gregory J. Wagner and Timothy J. Carrig, Richard H. Jarman, Ralph H. Page and Kathleen I. Schaffers, Jean-Oliver Ndap, Xiaoyan Ma, and Arnold Burger, "High-efficiency, broadly tunable continuous-wave Cr2+:ZnSe laser", OSA TOPS on Advanced Solid-State Lasers, Optical Society of America, Vol. 26 (1999) 427-434
Arnold Burger, Jean-Olivier Ndap, Kaushik Chattopadhyay and Steve Morgan, Chapter 4: "Bulk Semiconductors for Infrared Applications" in Photodetectors and Fiber Optics, ed. H. S. Nalwa, Academic Press, New York, 2001, pp. 239-305
K. Rademaker, K. Peterman, G. Huber, W.F. Krupke, R. H. Page, S.A. Payne, A. P. Yelisseyev, L.I. Isaenkoc, U. N. Roy, A. Burger, K. C. Mandal and K. Nitsch, "Slow Nonradiative Decay for Rare Earths in KPb2Br5 and RbPb2Br5", in OSA TOPS on Advanced Solid-State Photonics, Vol. 94, Gregory J. Quarles, ed. 2004, Optical Society of America, pp. 410-414.

INVITED PRESENTATIONS

"Material Properties of Large-Volume Cadmium Zinc Telluride Crystals and Their Relationship to Nuclear Detector Performance", R.B. James, B. Brunett, J. Heffelfinger, J. van Scyoc, J. Lund, F.P. Doty, C.L. Lingren, R. Olsen, E. Cross, H. Hermon, H.Yoon, N. Hilton, M. Schieber, E.Y. Lee, J. Toney, T.E. Schlesinger, M. Goorsky, W. Yao, H. Chen, and A. Burger, 1997 U.S. Workshop on the Physics and Chemistry of II-VI Materials, October 21-23, 1997, Santa Barbara, CA
"Characterization of metal contacts and surfaces of cadmium zinc telluride", Arnold Burger, Henry Chen, Kaushik Chattopadhyay, Detang Shi and W. Eugene Collins, R. B. James, Invited presentation 12th Int'l. Conf. On Crystal Growth, July 1998, Jerusalem, Israel
"Defects in CZT crystals and their relationship to gamma-ray detector performance"Arnold Burger, Ralph B. James, J. M. Van Scyoc III, B. Brunett, F. P. Doty, E. Y. Lee, H. W. Yao, J. Heffelfinger, D. Medlin, R. Olsen, J. C. Lund, N. Hilton, J. Erickson, E. Cross, E. Tarver, C. Hackett, A. Antolak, M. Schieber, T. E. Schlesinger, H. Yoon , J. -O. Ndap, and K. Chattopadhyay, , Invited presentation, The Fifth IUMRS-International Conference on Advanced Materials '99, June 13-18 Beijing, China.
"Evaluation of large-area amorphous Se (a-Se) stabilized alloy films for real-time x-ray imaging applications" (Invited Paper), K. C. Mandal, A. G. Smirnov, R. D. Rauh, EIC Labs., Inc.; U. N. Roy, A. Burger, R. N. Bhattacharya, SPIE International Symposium on Optical Science, Engineering, and Instrumentation Meeting, Penetrating Radiation Systems and Applications III, 29 July - 3 August 2001, San Diego, CA
"A new method for growing detector-grade cadmium zinc telluride crystals"(Invited presentation), L. Li, F. Lu, W. Yao, R. Olson, P.N. Luke, Y. Nemirovsky, A. Burger, G. Wright, K. Shah, and R. B. James, 12th International Workshop on Room Temperature Semiconductor X- and Gamma-Ray Detectors, Nov. 4-10, 2001, San Diego, CA
"Growth of Cadmium Zinc Telluride Crystals From the Melt and the Vapor Phase-Focused on their Impurity Segregation and Detector Performance" (Invited Paper) M. Schieber, R.B. James, H. Hermon, A. Vilensky, E. Meerson, M. Goorsky, T. Lam, H.W. Yao, R. Olsen, J. Erickson, E. Cross, A. Burger, J.O. Ndap, G. Wright, M. Fiederle, ICCG-13/ICVGE-11, The Thirteenth International Conference on Crystal Growth in Conjunction with The Eleventh International Conference on Vapor Growth and Epitaxy, 30 July - 4 August 2001 Kyoto, Japan
"Development of Neutron Detection with a Cryogenic Spectrometer", Z. W. Bell, D. A. Carpenter, S. S. Cristy, V. E. Lamberti, A. Burger, Brian F. Woodfield, Thomas Niedermayr, I. Dragos Hau, Simon E. Labov, Stephan Friedrich, invited paper presented at the American Nuclear Society/European Nuclear Society International Meeting, New Orleans, LA, November 16- 20, 2003.

"New progress in large-size CZT single-crystal growth for nuclear radiation detectors" Longxia Li, Fengying Lu, Chun Lee, H. Walter Yao, Arnold Burger, M. Groza, G. W. Wright, Ralph B. James, Richard W. Olsen, Paul N. Luke, Kanai S. Shah, Leonard J. Cirignano, Michael R. Squillante, Donald R. Ouimette SPIE Ammual Meeting, 4-5 August 2003 San Diego, CA
"Is the (Cd,Mn)Te crystal a prospective material for X-ray and gamma-ray detectors?"Andrzej Mycielski, A. Burger M. Sowinska, M. Groza, P. Wojnar, A. J. Szadkowski, B. Witkowska, W. Kaliszek, and P. Siffert, Invited paper presented at the NATO Advanced Research Workshop "Advanced Materials for Radiation Detectors and Sensors: Wide-Gap Semiconductors and Superconductors," Warsaw, Poland, September 8 – 10, 2004. Also submitted for publication in pysica status solidi (c)
"Thick CZT Detecotrs for Space-Borne X-ray Astronomy", H.Krawczynski, I. Jung, J. Perkins, A. Burger, and M. Groza. Presented at the International Symposium on Optical Science and Technology, SPIE's 49th Annual Meeting August 2-6, 2004, Denver, Colorado, and to be published in the Proceedings of the Conference on HARD X-RAY AND GAMMA-RAY DETECTOR PHYSICS VI, SPIE Vol 5540.
"Neutron Detection with Cryogenics and Semiconductors", Z. W. Bell, D. A. Carpenter, S. S. Cristy, V. E. Lamberti, A. Burger, Brian F. Woodfield, Thomas Niedermayr, I. Dragos Hau, Simon E. Labov, Stephan Friedrich, K. R. Pohl, L. van den Berg, Invited paper presented at the NATO Advanced Research Workshop "Advanced Materials for Radiation Detectors and Sensors: Wide-Gap Semiconductors and Superconductors," Warsaw, Poland, September 8 – 10, 2004. Also submitted for publication in pysica status solidi (c)
"Ternary Chalcopyrites as a New Class of Semi-insulators for Room-Temperature Radiation Detectors", Arnold Burger, Utpal N. Roy, Michael Groza, Zane W. Bell, and Donald A. Carpenter Invited talk to be delivered at Temperature Semiconductor X- and Gamma- Ray Detectors, Rome, Italy, October 16-22, 2004, also to be published in IEEE TRANSACTIONS ON NUCLEAR SCIENCE.
"Development of portable CdZnTe spectrometers for remote sensing of signatures from nuclear materials", Arnold Burger, Michael Groza, Yunlong Cui, Utpal N. Roy, Damian Hillman, Mike Guo, Longxia Li, Gomez W. Wright and Ralph B. James, Invited paper presented at the NATO Advanced Research Workshop "Advanced Materials for Radiation Detectors and Sensors: Wide-Gap Semiconductors and Superconductors," Warsaw, Poland, September 8 – 10, 2004.
"Large-size CZT radiation material and detector", L. Li, Y. Zhou, F. Lu, A. Burger, M. Groza, ; R. B. James, Brookhaven National Lab.; W. H. Yao, SPIE's 49th Annual Meeting, 2–6 August 2004, Denver, Colorado, USA, also to be published in the Proceedings of the Conference on Hard X-ray and Gamma-Ray Detector Physics VI (2005)
"The Fisk-Vanderbilt Masters-to-PhD Bridge Program", Arnold Burger, Keivan G. Stassun, David J. Ernst, Kelly Holley-Bockelmann, and Donna J. Webb, and Steve Morgan and W. Eugene Collins, presented at the American Association of Physics Teachers (AAPT) Meeting in Portland, OR . July 20, 2010

SEMINAR PRESENTATIONS, COLLOQUIA AND SHORT COURSES: more than 70

LIST OF PUBLICATIONS (refereed journals)

BOOK CHAPTERS AND MONOGRAPHS

A. Burger, D. Nason, L. van den Berg and M. Schieber, *"Semiconductors for Room Temperature X and Gamma Ray Detectors" in the Semiconductors and Semimetals Series, Chapter 5* Vol 43,) eds. T. E. Schlesinger and R. B. James, Academic Press, New York, 1995.

J. C. Lund and F. Olschner and A. Burger, "Semiconductors for Room Temperature X and Gamma Ray Detectors" in the *Semiconductors and Semimetals Series, Chapter 12 (Lead Iodide*) eds. T. E. Schlesinger and R. B. James, Academic Press, New York, 1995.

R. H. Page, L. D. DeLoach, K. I. Schaffers, F. D. Patel, R. J. Beach, S. A. Payne, W. F. Krupke and A. Burger, "Recent Developments in Cr+2-doped II-VI compound Lasers", *OSA TOPS on Advanced Solid-State Lasers, Vol. 1*, Optical Society of America, (1996) 130.

Gregory J. Wagner and Timothy J. Carrig, Richard H. Jarman, Ralph H. Page and Kathleen I. Schaffers, Jean-Oliver Ndap, Xiaoyan Ma, and Arnold Burger, "High-efficiency, broadly tunable continuous-wave Cr^{2+}:ZnSe laser", OSA TOPS on Advanced Solid-State Lasers, Optical Society of America, Vol. 26 (1999) 427-434

Arnold Burger, Jean-Olivier Ndap, Kaushik Chattopadhyay and Steve Morgan, *Chapter 4: "Bulk Semiconductors for Infrared Applications" in Photodetectors and Fiber Optics*, ed. H. S. Nalwa, Academic Press, New York, 2001, pp. 239-305

K. Rademaker, K. Peterman, G. Huber, W.F. Krupke, R. H. Page, S.A. Payne, A. P. Yelisseyev, L.I. Isaenkoc, U. N. Roy, A. Burger, K. C. Mandal and K. Nitsch, "Slow Nonradiative Decay for Rare Earths in KPb2Br5 and $RbPb_2Br_5$", in *OSA TOPS on Advanced Solid-State Photonics*, Vol. 94, Gregory J. Quarles, ed. 2004, Optical Society of America, pp. 410-414.

INVITED PRESENTATIONS

"Material Properties of Large-Volume Cadmium Zinc Telluride Crystals and Their Relationship to Nuclear Detector Performance", R.B. James, B. Brunett, J. Heffelfinger, J. van Scyoc, J. Lund, F.P. Doty, C.L. Lingren, R. Olsen, E. Cross, H. Hermon, H.Yoon, N. Hilton, M. Schieber, E.Y. Lee, J. Toney, T.E. Schlesinger, M. Goorsky, W. Yao, H. Chen, and A. Burger, 1997 U.S. Workshop on the Physics and Chemistry of II-VI Materials, October 21-23, 1997, Santa Barbara, CA

"Characterization of metal contacts and surfaces of cadmium zinc telluride", Arnold Burger, Henry Chen, Kaushik Chattopadhyay, Detang Shi and W. Eugene Collins, R. B. James, Invited presentation 12th Int'l. Conf. On Crystal Growth, July 1998, Jerusalem, Israel

*"Defects in CZT crystals and their relationship to gamma-ray detector performance"*Arnold Burger, Ralph B. James, J. M. Van Scyoc III, B. Brunett, F. P. Doty, E. Y. Lee, H. W. Yao, J. Heffelfinger, D. Medlin, R. Olsen, J. C. Lund, N. Hilton, J. Erickson, E. Cross, E. Tarver, C. Hackett, A. Antolak, M. Schieber, T. E. Schlesinger, H. Yoon , J. -O. Ndap, and K. Chattopadhyay, , *Invited presentation*, The Fifth IUMRS-International Conference on Advanced Materials '99, June 13-18 Beijing, China.

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"Growth of Cadmium Zinc Telluride Crystals From the Melt and the Vapor Phase-Focused on their Impurity Segregation and Detector Performance" (Invited Paper) M. Schieber, R.B. James, H. Hermon, A. Vilensky, E. Meerson, M. Goorsky, T. Lam, H.W. Yao, R. Olsen, J. Erickson, E. Cross, A. Burger, J.O. Ndap, G. Wright, M. Fiederle, ICCG-13/ICVGE-11, The Thirteenth International Conference on Crystal Growth in Conjunction with The Eleventh International Conference on Vapor Growth and Epitaxy, 30 July - 4 August 2001 Kyoto, Japan

"Development of Neutron Detection with a Cryogenic Spectrometer", Z. W. Bell, D. A. Carpenter, S. S. Cristy, V. E. Lamberti, A. Burger, Brian F. Woodfield, Thomas Niedermayr, I. Dragos Hau, Simon E. Labov, Stephan Friedrich, invited paper presented at the American Nuclear Society/European Nuclear Society International Meeting, New Orleans, LA, November 16- 20, 2003.

"New progress in large-size CZT single-crystal growth for nuclear radiation detectors" Longxia Li, Fengying Lu, Chun Lee, H. Walter Yao, Arnold Burger, M. Groza, G. W. Wright, Ralph B. James, Richard W. Olsen, Paul N. Luke, Kanai S. Shah, Leonard J. Cirignano, Michael R. Squillante, Donald R. Ouimette SPIE Ammual Meeting, 4-5 August 2003 San Diego, CA

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"Thick CZT Detectors for Space-Borne X-ray Astronomy", H.Krawczynski, I. Jung, J. Perkins, A. Burger, and M. Groza. Presented at the International Symposium on Optical Science and Technology, SPIE's 49th Annual Meeting August 2-6, 2004, Denver, Colorado, and to be published in the Proceedings of the Conference on HARD X-RAY AND GAMMA-RAY DETECTOR PHYSICS VI, SPIE Vol 5540.

"Neutron Detection with Cryogenics and Semiconductors", Z. W. Bell, D. A. Carpenter, S. S. Cristy, V. E.

Lamberti, A. Burger, Brian F. Woodfield, Thomas Niedermayr, I. Dragos Hau, Simon E. Labov, Stephan Friedrich, K. R. Pohl, L. van den Berg, Invited paper presented at the NATO Advanced Research Workshop "Advanced Materials for Radiation Detectors and Sensors: Wide-Gap Semiconductors and Superconductors," Warsaw, Poland, September 8 – 10, 2004. Also submitted for publication in pysica status solidi (c)

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"Development of portable CdZnTe spectrometers for remote sensing of signatures from nuclear materials", Arnold Burger, Michael Groza, Yunlong Cui, Utpal N. Roy, Damian Hillman, Mike Guo, Longxia Li, Gomez W. Wright and Ralph B. James, Invited paper presented at the NATO Advanced Research Workshop "Advanced Materials for Radiation Detectors and Sensors: Wide-Gap Semiconductors and Superconductors," Warsaw, Poland, September 8 – 10, 2004.

SEMINAR PRESENTATIONS , COLLOQUIA AND SHORT COURSES: more than 70

LIST OF PUBLICATIONS (refereed journals)

1. A. Burger, M. Roth and M. Schieber, "The Role of Polyethylene in Platelet Growth of Mercuric Iodide", J. Cryst. Growth **56** (1982) 526-531.
2. A. Levi, A. Burger, M. Schieber, J. Nissenbaum and Z. Burshtein, "The Influence of Thermal and Chemical Treatment on Surface Recombination Velocity in HgI_2", Nucl. Inst. and Meth. **213** (1983) 35-38.
3. J. Nissenbaum, I. Shilo, A. Burger, A. Levi, M. Schieber, L. Keller and N.J. Wagner, "Nuclear Response and Phase Transformation of Melt Grown SbI_3 doped HgI_2", Nucl. Inst. Meth. **213** (1983) 27-30.
4. A. Levi, A. Burger, M. Schieber, W.B. Yellon and R.W. Alkire, "Improved Fabrication of HgI_2 Nuclear Radiation Detectors by Machine Cleaving", Nucl. Inst. Meth. **213** (1983) 31-34.
5. J. Nissenbaum, A. Levi, A. Burger and M. Schieber, "Replacement of Monochromator and Proportional Gas Counter by HgI_2 Detector in X-Ray Powder Diffraction", J. Appl. Cryst. **16** (1983) 136-137.
6. J. Nissenbaum, A. Levi, A. Burger, M. Schieber and Z. Burshtein, "Suppression of X-ray Fluorescence Background in X-Ray Powder Diffraction by Mercuric Iodide Spectrometer", in "Advances in X-Ray Analysis", **Vol. 27**, (1983) 307-316.
7. A. Burger, I. Shilo and M. Schieber, "Cadmium Selenide Crystal: A Novel Room Temperature Gamma Radiation Detector", I.E.E.E. Trans. Nucl. Sci. **NS-30**, (1983) 368-371.
8. A. Burger and M. Roth, "Growth of Medium Electrical Resistivity CdSe Single Crystals by the Temperature Gradient Solution Zoning Technique", J. Cryst. Growth, **67** (1984) 507-512.
9. A. Burger and M. Roth, "Temperature Gradient Solution Zoning Growth and Characterization of $Zn_XCd_{1-X}Se$ Single Crystals", J. Cryst. Growth, **70** (1984) 386-392.
10. A. Burger and M. Roth, "The Ternary $Cd_{0.3}Zn_{0.7}Se$ Compound, A Novel Room Temperature X-ray Detector", I.E.E.E. Trans. Nucl. Sci. **32** (1985) 556-559.
11. A. Burger, A. Levi, J. Nissenbaum, M. Roth and M. Schieber, "Yield and Quality of HgI_2 Vapor Grown Platelets", J. Cryst. Growth **72** (1985) 643-649.
12. M. Roth and A. Burger, "Improved Spectrometer Performance of CdSe Room Temperature Gamma-Ray Detector", I.E.E.E. Trans. Nucl. Sci. 33/1 (1986) 407-410.
13. M. Roth, A. Burger, J. Nissenbaum and M. Schieber, "Transient Charge Technique Investigation of HgI_2 and CdSe Nuclear Detectors", I.E.E.E. Trans. Nucl. Sci., **NS- 34/1** (1987)465-469
14. L. Samuel, Y. Brada, A. Burger and M. Roth, "The Temperature Shift of the Absorption Edge in Mixed Single Crystals of $Zn_xCd_{1-x}Se$", Phys. Rev. B **32/2** (1987) 1168.
15. L. Samuel, Y. Brada, A. Burger and M.Roth, "Urbach Rule in Mixed Single Crystals of $Zn_xCd_{1-x}Se$", Phys. Rev. B **36/2** (1987) 1174.
16. A. Burger, S. Wei, E. Silberman, L. Franks and W. Schnepple, "The Photocapacitance of HgI_2/Electrolyte System", Nucl. Inst. and Meth. in Phys. Res., **A243**, (1989) 232.

17. A. Burger, H. Jiang, S. Morgan, E. Silberman, M. Schieber, L. van den Berg, L. Keller and C. N. J. Wagner "Study of HgI_2 Near Melting Using Differential Scanning Calorimetry, Raman Spectroscopy and X-Ray Diffraction", Nucl. Inst. and Meth. in Phys. Res., **A243**, (1989) 130.
18. M. Roth and A. Burger, "Effect of copper related defects on the electron transport properties of semi-insulating CdSe", Appl. Phys. Lett., **52(15)** (1988) 1234.
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