

Publications and Presentations

1. "Energy-Momentum Relation for Polarons Confined to One Dimension", E. S. Hellman and J. S. Harris, Jr., *Phys. Rev.* **B33**, 8284 (1986).
2. "Quasi-One Dimensional Polaron Effects and Current Inhomogeneities in Sequential Phonon Emission", E. S. Hellman, J. S. Harris, Jr., C. B. Hanna and R. B. Laughlin, *Physica B* **134**, 41 (1985). Presented* at the 4th International Conference on Hot Electrons in Semiconductors, Innsbruck, Austria, 7/85.
3. "Molecular Beam Epitaxy of Gallium Arsenide Using Direct Radiative Substrate Heating", E. S. Hellman, P. M. Pitner, A. Harwit, D. Liu, G. W. Yoffe, J. S. Harris, Jr., B. Caffee and T. Hierl, *J. Vac. Sci. & Technol.* **B 4**, 574 (1986). Presented at the 6th Workshop on Molecular Beam Epitaxy, Minneapolis, 8/85.
4. "Polaron Transport in Quasi-One Dimensional Semiconductor Heterostructures", E. S. Hellman and J. S. Harris, Jr., *Surface Science* **174**, 459 (1986). Presented* at the 2nd International Conference on Modulated Semiconductor Structures, Kyoto, Japan, 9/85.
5. "The Mechanism of Current Modulation by Optic Phonon Emission in Heterojunction Tunneling Experiments", C. B. Hanna, E. S. Hellman and R. B. Laughlin, *Phys. Rev.* **B 34**, 5475 (1986).
6. "Reduction of the Acceptor Impurity Background in GaAs Grown by Molecular Beam Epitaxy", E. C. Larkins, E. S. Hellman, D. G. Schlom, J. S. Harris, Jr., M. H. Kim and G. E. Stillman, *Appl. Phys. Lett.* **44**, 391 (1986).
7. "Infrared Transmission Spectroscopy of GaAs During Molecular Beam Epitaxy", E. S. Hellman and J. S. Harris, Jr., *J. Cryst. Growth* **81**, 38 (1987). Presented* at the 4th International Conference on Molecular Beam Epitaxy, York, England, 9/86.
8. "GaAs with Very Low Acceptor Impurity Background Grown by Molecular Beam Epitaxy", E. C. Larkins, E. S. Hellman, D. G. Schlom, J. S. Harris, Jr., M. H. Kim and G. E. Stillman, *J. Cryst. Growth* **81**, 344 (1987). Presented at the 4th International Conference on Molecular Beam Epitaxy, York, England, 9/86.
9. "Polynomial Kinetic Energy Approximation for Direct-Indirect Heterostructures", E. S. Hellman and J. S. Harris, Jr., *Superlattices and Microstructures* **3**, 167 (1987). Presented* at the 2nd International Conference on Superlattices, Microstructures and Microdevices, Gothenburg, Sweden, 8/86.
10. "Hot Electron Resistance and Magnetoresistance in High Purity Gallium Arsenide", E. S. Hellman, Ph.D. Dissertation, Stanford University, May, 1987.
11. "Hot Electron Transport Parallel to Large Magnetic Fields in Gallium Arsenide", E. S. Hellman and J. S. Harris, Jr., *Solid State Electronics* **31**, 785 (1988). Presented* at the 5th International Conference on Hot Carriers in Semiconductors, Boston, 7/87.
12. "Superconducting Properties of Thin Films of the High-T_c Perovskite Superconductors", A. Kapitulnik, B. Oh, M. Naito, K. Char, A. D. Kent, N. Missert, E. S. Hellman, S. Arnason, J. W. P. Hsu, M. R. Hahn, P. Rosenthal, R. Barton, M. R. Beasley, T. H. Geballe and R. H. Hammond, in *Proceedings of the Adriatico Research Conference on High Temperature Superconductors*, edited by S. Lundqvist, E. Tosatti, M. P. Tosi and Yu Lu, (World Scientific, Singapore, 1987) p. 131-149. Also *Int. J. Mod. Phys.* **B 1** (3-4), 779-797. Invited paper, ICTP, Trieste, Italy, 5-8 July 1987.
13. "Growth of High T_c Superconducting Thin Films Using Molecular Beam Epitaxy Techniques", C. Webb, S.-L. Weng, J. N. Eckstein, N. Missert, K. Char, D. G. Schlom, E. S. Hellman, M. R. Beasley, A. Kapitulnik, and J. S. Harris, Jr., *Appl. Phys. Lett.* **51**, 1191 (1987).

14. "Molecular Beam Epitaxy and Deposition of High T_c Superconductors", E. S. Hellman, D. G. Schlom, N. Missert, K. Char, J. S. Harris, Jr., M. R. Beasley, A. Kapitulnik, T. H. Geballe, C. Webb, S.-L. Weng and J. N. Eckstein, *J. Vac. Sci. & Tech.* **B 6**, 799 (1988). Presented* at the 8th Workshop on Molecular Beam Epitaxy, Los Angeles, 9/87.
15. "Molecular Beam Epitaxy of Layered Dy-Ba-Cu-O Compounds", D. G. Schlom, J. N. Eckstein, E. S. Hellman, F. Turner, C. Webb, J. S. Harris, Jr., M. R. Beasley and T. H. Geballe, *Extended Abstracts, High Temperature Superconductors II*, ed. by D. W. Capone, W. H. Butler, B. Batlogg and C. W. Chu (Materials Research Society, Pittsburg, 1988), 197. Presented at the Spring Meeting of the Materials Research Society, Reno, 4/88.
16. "Elastic Scattering Centers in Resonant Tunneling Diodes", E. Wolak, K. L. Lear, P. M. Pitner, E. S. Hellman, B. G. Park, T. Weil and J. S. Harris, Jr., *Appl. Phys. Lett.* **53**, 201 (1988).
17. "Limit Cycle Oscillations in Negative Differential Resistance Devices", E. S. Hellman, K. L. Lear, and J. S. Harris, Jr., *J. Appl. Phys.* **64**, 2798 (1988).
18. "The Effect of Elastic Scattering Centers on the Current Voltage Characteristics of Double Barrier Resonant Tunneling Diodes", E. P. Wolak, K. L. Lear, P. M. Pitner, B. G. Park, E. S. Hellman, T. Weil, J. S. Harris, Jr., and D. Thomas, in *Quantum Well and Superlattice Physics II*, edited by F. Capasso, G. H. Döhler, J. N. Schulman, *Proc. SPIE* **943**, 36 (1988). Presented at the 1988 Symposium on Advances in Semiconductors and Semiconductors: Physics and Device Applications, Newport Beach, 3/88.
19. "Umklapp Electron-Electron Scattering Resistivity of Half Filled Copper-Oxygen Chains and Planes", E. S. Hellman, *Phys. Rev* **B 39**, 9604 (1989).
20. "Molecular Beam Epitaxy of Layered Dy-Ba-Cu-O Compounds", D. G. Schlom, J. N. Eckstein, E. S. Hellman, S. K. Streiffer, J. S. Harris, Jr., M. R. Beasley, J. C. Bravman, T. H. Geballe, C. Webb, K. von Dessionneck, F. Turner, *Appl. Phys. Lett.* **53**, 1660 (1988).
21. "Phase Characterization of Dysprosium Barium Copper Oxide Thin Films Grown on Strontium Titanate by Molecular Beam Epitaxy", E. S. Hellman, D. G. Schlom, A. F. Marshall, S. K. Streiffer, J. S. Harris, Jr., M. R. Beasley, J. C. Bravman, T. H. Geballe, J. N. Eckstein and C. Webb, *J. Mater. Res.* **4**, 476 (1989).
22. "Epitaxial Growth of High-Temperature Superconducting Thin Films", J. N. Eckstein, D. G. Schlom, E. S. Hellman, K. von Dessionneck, Z. J. Chen, C. Webb, F. Turner, J. S. Harris, Jr., M. R. Beasley, T. H. Geballe, *J. Vac. Sci. & Tech.* **B 7**, 319 (1989). Presented at the 9th Workshop on Molecular Beam Epitaxy, Lafayette, 9/88.
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24. "Molecular Beam Epitaxy of Superconducting (Rb,Ba)BiO₃" E. S. Hellman, E. H. Hartford and R. M. Fleming, *Appl. Phys. Lett.* **55**, 2120 (1989).
25. "Superconducting (Rb,Ba)BiO₃ Thin Films Grown by Molecular Beam Epitaxy", E. S. Hellman, E. H. Hartford and T. T. M. Palstra, *Physica C* **162-164**, 633-634 (1989). Presented* at the International Conference on Materials and Mechanisms of Superconductivity – High Temperature Superconductors II, Stanford, 7/89.
26. "Adsorption Controlled Molecular Beam Epitaxy of Superconducting Rubidium Barium Bismuth Oxide", E. S. Hellman and E. H. Hartford, *J. Vac. Sci. & Tech.* **B 8**(2), 332-5 (1990). Presented* at the Tenth Molecular Beam Epitaxy Workshop, Raleigh, 9/89.
27. "(Rubidium,Barium) Bismuth Oxide: a Model Material for Molecular Beam Epitaxy of Perovskites", E. S. Hellman and E. H. Hartford, in "Processing of Films for High T_c Superconducting Electronics", edited by T. Venkatesan, *Proc. SPIE* **1187**, 22-26 (1990). Invited

- paper* at SPIE's 1989 Symposium on Microelectronic Integrated Processing: Growth, Monitoring and Control, Santa Clara, 10/89.
28. "Molecular Beam Epitaxy of Rubidium Barium Bismuth Oxide: Structural Phenomena in Perovskite Heteroepitaxy" E. S. Hellman, E. H. Hartford, D. J. Werder and R. M. Fleming, in "High Temperature Superconductors: Fundamental Properties and Novel Materials Processing" edited by D. K. Christen, J. Narayan, and L. F. Schneemeyer, *Materials Research Society Symposium Proceedings Volume 169* (Materials Research Society, Pittsburgh, 1990) 719-722. Presented* at the Fall Meeting of the Materials Research Society, Boston, 12/89.
 29. "Optical Characterization of Excited States in BaBiO₃", J. F. Federici, B. I. Greene, E. H. Hartford and E. S. Hellman, *Phys. Rev. B* **42**, 923-6 (1990).
 30. "The Effects of Oxidation and Air Exposure on (Rb,Ba)BiO₃ Superconducting Thin Films", M. A. Sobolewski, S. Semancik, E. S. Hellman and E. H. Hartford, *J. Vac. Sci. & Tech. A* **9**, 2716 (1991). Presented at the American Vacuum Society Meeting, Toronto, 10/90.
 31. "Circular Dichroism Observed in Bismuthate Superconductors", K. B. Lyons, J. F. Dillon, Jr., E. S. Hellman, E. H. Hartford and M. McGlashan-Powell, *Phys. Rev. B* **43**(13), 11408 (1991).
 32. "All-High T_c Josephson Tunnel Junction: Ba_{1-x}K_xBiO₃/Ba_{1-x}K_xBiO₃ Junctions", A. N. Pargellis, F. Sharifi, R. C. Dynes, B. Miller, E. S. Hellman, J. M. Rosamilia and E. H. Hartford, Jr., *Appl. Phys. Lett.* **58** (1), 95-96 (1991).
 33. "Electron Tunneling in the High T_c Bismuthate Superconductors", F. Sharifi, A. N. Pargellis, R. C. Dynes, B. Miller, E. S. Hellman, J. M. Rosamilia and E. H. Hartford, Jr., *Phys. Rev. B* **44**(22), 12521-4 (1991).
 34. "Epitaxial Ba_{1-x}K_xBiO₃ Films on MgO: Nucleation, Cracking and Critical Currents", E. S. Hellman, E. H. Hartford and E. M. Gyorgy, *Appl. Phys. Lett.* **58**, (12), 1335-1337 (1991).
 35. "Molecular Beam Epitaxy of Superconducting Bismuthates on Various Substrates", E. S. Hellman, E. H. Hartford, C. D. Brandle, G. W. Berkstresser, H. P. Jenssen, A. Cassanho, and D. Gabbe, in "Heteroepitaxy of Dissimilar Materials" edited by R. F. C. Farrow, J. P. Harbison, P. S. Peercy and A. Zangwill, *Materials Research Society Symposium Proceedings Vol. 221* (Materials Research Society, Pittsburgh, 1991), 53-58. Presented* at the Spring Meeting of the Materials Research Society, Anaheim, 1991.
 36. "Molecular Beam Epitaxy of Dysprosium Barium Cuprous Oxides Using Molecular Oxygen", E. S. Hellman, E. H. Hartford and E. A. Fitzgerald, *J. Mater. Res.* **7**(4)795-800, (1992).
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 38. "New Approaches to the Preparation of High-T_c Josephson Devices", M. Gurvitch J. Macaulay, Z. Bao, S. Han, J.-Y. Lin, J. Lukens, B. Nadgorny, Julia M. Phillips, M. P. Siegal and E. S. Hellman. Invited presentation at the 3rd FED Workshop on High Temperature Superconducting Electron Devices, May 15-17, 1991, Kumamoto, Japan.
 39. "Variable Range Hopping Transport in Ba_{1-x}K_xBiO₃ (0<x<0.35)", E. S. Hellman, E. H. Hartford, B. Miller, K. W. Baldwin and J. M. Rosamilia, *Phys. Rev. B* **44**, 9719 (1991).
 40. "Tunneling Spectroscopy in Ba_{1-x}K_xBiO₃", R. C. Dynes, F. Sharifi, A. Pargellis, E. S. Hellman, B. Miller, E. Hartford, Jr. and J. Rosamilia, *Physica C* **185-189**, 234-240 (1991). Invited paper at the International Conference on Materials and Mechanisms of Superconductivity – High Temperature Superconductors III, July 1991, Kanazawa, Japan.
 41. "Plasmons in High Temperature Superconductors", J. H. Kim, I. Bozovic, J. S. Harris, Jr., W. Y. Lee, C. B. Eom, T. H. Geballe and E. S. Hellman, *Physica C* **185-189**, 1019-1020 (1991).

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42. “Ba_{1-x}K_xBiO₃/BaBi₂O_y Thin Film Heterostructures” E. S. Hellman, E. H. Hartford, Jr., R. M. Fleming, P. Marsh and D. J. Werder, *Physica C* **185-189**, 2089-2090 (1991). Presented* at the International Conference on Materials and Mechanisms of Superconductivity – High Temperature Superconductors III, July 1991, Kanazawa, Japan.
43. “Synthesis of New Oxide Materials by Molecular Beam Epitaxy: the Dy-Ba-Cu-O and Ba-K-Bi-O Systems”, E. S. Hellman and E. H. Hartford, Jr., *Physica C* **190**, 31-34 (1991). Invited lecture* at the International Workshop on Chemical Designing and Processing of High Tc Superconductors (Chem-HTSC), July 1991, Karuizawa, Japan.
44. “Molecular Beam Epitaxy of Ba_{1-x}K_xBiO₃ Films and Heterostructures”, E. S. Hellman, E. H. Hartford, Jr., S. Martin, D. J. Werder, G. M. Roesler, Jr. and P. M. Tedrow, *Advances in Superconductivity IV: Proceedings of the 4th International Symposium on Superconductivity (ISS'91), October 14-17, 1991, Tokyo*, ed. by H. Hayakawa and N. Koshizuka, (Springer-Verlag, Tokyo, 1992), 855-858. Invited paper* at the 4th International Symposium on Superconductivity (ISS'89), October 14-17, 1991, Tokyo.
45. “T_c-δ Relations in YBa₂Cu₃O_{7-δ} Thin Films: Effects of Oxygen Pressure During Growth”, R. Feenstra, D. K. Christen, J. D. Budai, M. F. Chisholm, S. J. Pennycook, E. C. Jones, D. P. Norton, D. H. Lowndes, V. C. Matijasevic, C. B. Eom, T. H. Geballe, E. S. Hellman, E. H. Hartford, J. Schubert and W. Zander, *Materials Research Society Symposium Proceedings Vol. 275* (Materials Research Society, Pittsburgh, 1992), 101. Presented at MRS Spring Meeting, San Francisco, April 1992.
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47. “Ba_{1-x}K_xBiO₃ Sandwich-Type Tunnel Junctions Grown by Molecular Beam Epitaxy”, E. S. Hellman, S. Martin, E. H. Hartford, Jr., D. J. Werder, G. M. Roesler, Jr., and P. M. Tedrow, *Physica C* **201** (1&2), 166-170 (1992).
48. “Pauli Limited Critical Field of Ba_{1-x}K_xBiO₃ Determined from Quasiparticle Tunneling”, G. Roesler, P. M. Tedrow, E. S. Hellman, and E. H. Hartford, *IEEE Trans. Appl. Superconduct.* **3** (1), 1280-1282 (1993). Presented at the 1992 Applied Superconductivity Conference, Chicago, August 1992.
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50. “Normal State Resistivity and Hall Effect in Ba_{1-x}K_xBiO₃ Epitaxial Films”, E. S. Hellman and E. H. Hartford, Jr., *Phys. Rev. B* **47**(17), 11346-11353 (1993).
51. “Quasiparticle-Tunneling Properties of Ba_{1-x}K_xBiO₃/BaBi₂O_y/Ba_{1-x}K_xBiO₃ Sandwich Junctions”, S. Martin, E. S. Hellman, A. Kussmaul and E. H. Hartford, Jr., *Phys. Rev. B* **47**(4), 14510-14513 (1993).
52. “Comment on the Isotope Effect in Superconducting Ba_{1-x}K_xBiO₃”, E. S. Hellman, *Physica C* **211** (3&4), 486-488 (1993).
53. “Hysteretic Josephson-Junction Behavior and Phase Diffusion in Ba_{1-x}K_xBiO₃ Films”, S. Martin, E. S. Hellman, A. Kussmaul and E. H. Hartford, Jr., *Phys. Rev. B* **48** (9), 6626-6631 (1993).
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55. "Tunnel Junctions Prepared Using BKBO Films", P. M. Tedrow, A. Kussmaul, G. M. Roesler, Jr., E. S. Hellman, and E. H. Hartford, Jr., to be published. Invited talk at the 183th Meeting of the Electrochemical Society, Honolulu, HI, May 1993.
 56. "Superconductor-Insulator-Superconductor Tunneling in $Ba_{1-x}K_xBiO_3$ Grain Boundaries", A. Kussmaul, E. S. Hellman, E. H. Hartford, Jr., and P. M. Tedrow, *Appl. Phys. Lett.* **63**(20), 2824-2826 (1993).
 57. "Effects of Oxygen on the Sublimation of Alkaline Earths from Effusion Cells", E. S. Hellman and E. H. Hartford, Jr., *J. Vac. Sci. & Tech., B* **12**(2), 1178-1180 (1994). Presented* at the 13th North American Conference on Molecular Beam Epitaxy, Stanford, CA, September 1993.
 58. "Penetration Depth, Microwave Surface Resistance, and BCS Gap Ratio in NbN and $Ba_{1-x}K_xBiO_3$ Thin Films", M. S. Pambianchi, S. M. Anlage, E. S. Hellman, E. H. Hartford, Jr., M. Bruns and S. Y. Lee, *Appl. Phys. Lett.* **64**(2), 244-246 (1994).
 59. "Epitaxial Solid-Solution Films of Immiscible MgO and CaO", E. S. Hellman and E. H. Hartford, Jr. *Appl. Phys. Lett.* **64**(11), 1341-1343 (1994).
 60. "The Far Infrared Transmission of $Ba_{1-x}K_xBiO_3$ Thin Films", F. J. Dunmore, H. D. Drew, E. J. Nicol, E. S. Hellman, and E. H. Hartford, Jr., *Phys. Rev. B* **50**(1), 643-646 (1994).
 61. "Angular Dependence of Tunneling Effects in $Ba_{1-x}K_xBiO_3$ Grain Boundaries", A. Kussmaul, E. S. Hellman, E. H. Hartford, Jr., A. Gupta and P. M. Tedrow, in "Oxide Superconductor Physics and Nano-Engineering", *Proc. SPIE* **2158**, 124-134 (1994). Invited talk at SPIE's 1994 Symposium on Optoelectronics for Information and Microwave Systems, Los Angeles. 1/94.
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 63. "The Far Infrared Energy Gap of $Ba_{1-x}K_xBiO_3$ Thin Films", F. J. Dunmore, H. D. Drew, E. J. Nicol, E. S. Hellman, and E. H. Hartford, Jr., *Physica C*. presented at the International Conference on Materials and Mechanisms of Superconductivity – High Temperature Superconductors IV, July 1994, Grenoble, France.
 64. "Evidence for Two-Particle Normal-State Tunneling in $Ba_{1-x}K_xBiO_3$ Native Barrier Tunnel Junctions", E. S. Hellman and E. H. Hartford, Jr., *Phys. Rev. B* **52** (9), 6822 (1995).
 65. "Heteroepitaxial $Ba_{1-x}K_xBiO_3/La_{2-y}Sr_yCuO_4$ Tunnel Junctions", E. S. Hellman, J. R. Kwo, A. Kussmaul and E. H. Hartford, Jr, *Physica C* **251**, 133-139(1995).
 66. "Origin of the $\phi \approx \pm 9^\circ$ Peaks in $YBa_2Cu_3O_{7-\delta}$ Films Grown on Cubic Zirconia Substrates", D. G. Schlom, E. S. Hellman, E. H. Hartford, Jr., C. B. Eom, J. C. Clark and J. Mannhart, *Journal of Materials Research* **11**(6), 1336 (1996).
 67. "High Resolution Transmission Electron Microscopy of High Angle $Ba_{1-x}K_xBiO_3$ Grain Boundaries that are Superconductor-Insulator-Superconductor Josephson Tunnel Junctions" S.-W. Chan, A. Kussmaul, E. S. Hellman, and E. H. Hartford, Jr., *Journal of Materials Research* **13**(7), 1774-1780 (1998).

68. "ScAlMgO₄: an Oxide Substrate for GaN Epitaxy", E. S. Hellman, C. D. Brandle, L. F. Schneemeyer, D. Wiesmann, I. Brener, T. Siegrist, G. W. Berkstresser, D. N. E. Buchanan and E. H. Hartford, Jr., *MRS Internet Journal of Nitride Semiconductor Research* **1**, 1 (1995). <http://nsr.mij.mrs.org/1/1/>
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72. "Alternative Oxide Substrates for GaN Heteroepitaxy" E. S. Hellman, in *The Properties of Gallium Nitride*, Edited by J. H. Edgar, EMIS Datareviews Series, (INSPEC, London, to be published).
 73. "The Polarity of GaN: a Critical Review" E. S. Hellman, *MRS Internet Journal of Nitride Semiconductor Research* **3**, 11 (1998). <http://dx.doi.org/10.1557/S1092578300000831>
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Other Talks

1. "The Dispersion Relation for Energetic Polarons Confined to One Dimension", E. S. Hellman and J. S. Harris, Jr., *Bull. Am. Phys. Soc.* 30(3), 473 (1985). Presented at the American Physical Society March Meeting, Baltimore, 1985.
2. "Slow Polarons Below the Phonon Emission Threshold in High Magnetic Fields or in One Dimensional Heterostructures", E. S. Hellman and J. S. Harris, Jr., *Bull. Am. Phys. Soc.* 31(3), 394 (1986). Presented at the American Physical Society March Meeting, Las Vegas, 1986.
3. "Space Charge Modulation of Current in Heterojunction Tunneling Experiments", C. B. Hanna, E. S. Hellman and R. B. Laughlin, *Bull. Am. Phys. Soc.* 31(3), 394 (1986). Presented at the American Physical Society March Meeting, Las Vegas, 1986.
4. "Oscillatory Longitudinal Magnetoresistance in High Purity GaAs", E. S. Hellman and J. S. Harris, Jr., *Bull. Am. Phys. Soc.* 32(3), 681 (1987). Presented at the American Physical Society March Meeting, New York, 1987.
5. "In-situ RHEED Characterization and Molecular Beam Epitaxy of DyBa₂Cu₃O_{7-x}", I. N. Eckstein, F. Turner, C. Webb, S.-L. Weng, D. G. Schlom, E. S. Hellman, N. Missert, J. S. Harris, Jr., M. R. Beasley and T. H. Geballe, *Bull. Am. Phys. Soc.* 33(3), 333 (1988). Presented at American Physical Society March Meeting, New Orleans, 1988.
6. "Limit Cycle Oscillations in Negative Differential Resistance Devices", E. S. Hellman, K. L. Lear, and J. S. Harris, Jr., *Bull. Am. Phys. Soc.* 33(3), 702 (1988). Presented at American Physical Society March Meeting, New Orleans, 1988.
7. "Spectroscopic Identification of Charge Carrying Species in BaBiO₃", I. F. Federici, B. I. Greene, E. H. Hartford and E. S. Hellman, *Bull. Am. Phys. Soc.* 35(3), 290 (1990). Presented at the American Physical Society March Meeting, Anaheim, 1990.
8. "Molecular Beam Epitaxy of Superconducting (Rb,Ba)BiO₃", E. S. Hellman *Bull. Am. Phys. Soc.* 35(3), 535 (1990). Invited paper at the American Physical Society March Meeting, Anaheim, 1990.
9. "Molecular Beam Epitaxy of Dysprosium Barium Cuprous Oxides Using Molecular Oxygen", E. S. Hellman, E. H. Hartford. Presented at the Fall Meeting of the Materials Research Society, Boston, December 1990.
10. "Molecular Beam Epitaxy of Superconducting Ba_{1-x}K_xBiO₃ Films and Heterostructures", E. S. Hellman. Invited lecture at Workshop on Tunneling and Devices in High T_c Superconductors, Argonne National Laboratory, March 1991.
11. "Is There Charge Density Wave Transport in Ba_{1-x}K_xBiO₃ (0<x<.35)?" , E. S. Hellman, E. H. Hartford, B. Miller, K. W. Baldwin and J. M. Rosamilia, *Bull. Am. Phys. Soc.* 36(3) 610 (1991). Presented at the American Physical Society March Meeting, Cincinnati, 1991.
12. "Electron Tunneling in the High T_c Bismuthate Superconductors", F. Sharifi, A. N. Pargellis, R. C. Dynes, E. S. Hellman, B. Miller, E. H. Hartford and J. M. Rosamilia, *Bull. Am. Phys. Soc.* 36(3), 526 (1991). Presented at the American Physical Society March Meeting, Cincinnati, 1991.
13. "Josephson Tunneling in the High T_c Ba_{1-x}K_xBiO₃", A. N. Pargellis, F. Sharifi, R. C. Dynes, B. Miller, E. S. Hellman, J. M. Rosamilia, and E. H. Hartford, Jr., *Bull. Am. Phys. Soc.* 36(3), 839 (1991). Presented at the American Physical Society March Meeting, Cincinnati, 1991.

14. "Superconducting Tunnel Junctions of the High T_c Superconductor $Ba_{1-x}K_xBiO_3$ ", E. Sharifi, A. N. Pargellis, R. C. Dynes, E. S. Hellman, B. Miller, E. H. Hartford, Jr. and J. M. Rosamilia. Presented at the Spring Meeting of the Materials Research Society, Anaheim, 1991.
15. "Heteroepitaxy of Thin Film Superconductors". M. G. Norton, C. B. Carter, B. H. Moeckly, R. A. Buhrman, E. H. Hartford and E. S. Hellman. Presented at the Spring Meeting of the Materials Research Society, Anaheim, 1991.
16. "Molecular Beam Epitaxy of $Ba_{1-x}K_xBiO_3$: Growth, Heterostructures and Devices", E. S. Hellman, *J. Electrochem. Soc.* **138**(4), 221C (1991). Invited talk at the 179th Meeting of the Electrochemical Society, the 4th Symposium on High T_c Superconductor Technologies, Washington, D. C., May 1991.
17. "Growth of Barium Bismuth Oxide Superconducting Thin Films by MBE", M. G. Norton, E. S. Hellman, E. H. Hartford, Jr., and C. B. Carter. Presented at the Fall Meeting of the Materials Research Society, Boston, December 1991.
18. "A Comparative Study of Complex Dielectric Function of Cuprate and Bismate Superconductors", J. H. Kim, I. Bozovic, J. S. Harris, Jr., C. B. Eom, T. H. Geballe, W. Y. Lee and E. S. Hellman. Presented at the Fall Meeting of the Materials Research Society, Boston, December 1991.
19. "Normal State Resistivity of Superconducting $Ba_{1-x}K_xBiO_3$ Films", E. S. Hellman and E. H. Hartford, Jr., *Bull. Am. Phys. Soc.* **37**(1), 434 (1992). Presented at the American Physical Society March Meeting, Indianapolis, 1992.
20. "Molecular Beam Epitaxy: a Tool for Synthesis of Oxides", E. S. Hellman, *Bull. Am. Phys. Soc.* **37**(1), 796-797 (1992). Invited paper presented at the American Physical Society March Meeting, Indianapolis, 1992.
21. "Electrical Properties of $Ba_{1-x}K_xBiO_3$ Heterostructures", S. Martin, E. S. Hellman, E. H. Hartford, Jr., G. M. Roesler, Jr. and P. M. Tedrow, *Bull. Am. Phys. Soc.* **37**(1), 668 (1992), presented at the American Physical Society March Meeting, Indianapolis, 1992.
22. "Quasiparticle Spectrum of Superconducting $Ba_{1-x}K_xBiO_3$ in Planar N-I-S Tunnel Junctions", G. M. Roesler, Jr., P. M. Tedrow, E. S. Hellman, and E. H. Hartford, *Bull. Am. Phys. Soc.* **37**(1), 668 (1992), presented at the American Physical Society March Meeting, Indianapolis, 1992.
23. "A Comparative Optical Study of Oxide Metals and Superconductors", J. H. Kim, I. Bozovic, J. S. Harris, Jr., C. B. Eom, T. H. Geballe, W. Y. Lee, E. S. Hellman and J. T. Cheung, *Bull. Am. Phys. Soc.* **37**(1), 283 (1992), presented at the American Physical Society March Meeting, Indianapolis, 1992.
24. "Observations on the Growth of Barium Bismuth Oxide Thin Films", M. G. Norton, E. S. Hellman, E. H. Hartford, Jr., and C. B. Carter. To be published in the Proc. of the 50th Annual Meeting of the Electron Microscopy Society of America, Boston, August 1992, edited by G. W. Bailey et al. (San Francisco Press, San Francisco, 1992).
25. "Self-Doping by Growth-Induced Lattice Defects in $YBa_2Cu_3O_{7-\delta}$ Films", R. Feenstra, D. P. Norton, C. B. Eom, V. C. Matijasevic, J. Schubert, K. Y. Yang, E. S. Hellman, J. D. Budai, E. C. Jones and D. K. Christen, presented at the International Workshop on Superconductivity Co-Sponsored by ISTEC and MRS, Honolulu, June 1992.
26. " $Ba_{1-x}K_xBiO_3$ Sandwich-Type Tunnel Junctions Grown by Molecular Beam Epitaxy", E. S. Hellman, S. Martin, E. H. Hartford, Jr., D. J. Werder, G. M. Roesler, Jr. and P. M. Tedrow, presented at the 1992 Applied Superconductivity Conference, Chicago, August 1992.

27. "Barium Zirconate Buffer Layers for $Ba_{1-x}K_xBiO_3$ Films", E. S. Hellman, C. B. Eom, E. H. Hartford and Julia M. Phillips, presented at the Fall Meeting of the Materials Research Society, Boston, December 1992.
28. "Tunneling and Classical Phase Diffusion in BKBO Sandwich Junctions", S. Martin, E. S. Hellman, A. Kussmaul and E. H. Hartford, Jr., invited talk at Workshop on Superconductivity and Nonlinear Dynamics, Hyderabad (India) December 1992.
29. "Preparation and Transport Properties of BKBO-Insulator-BKBO Trilayer Junctions" A. Kussmaul, E. S. Hellman, E. H. Hartford, Jr., S. Martin and P. M. Tedrow, submitted to the Spring Meeting of the Materials Research Society, San Francisco, April 1993.
30. "Atomic Layer-By-Layer Molecular Beam Epitaxy of Barium Bismuthate Films and Heterostructures", E. S. Hellman, E. H. Hartford, Jr., A. Kussmaul, S. Martin and M. G. Norton, *Bull. Am. Phys. Soc.* **38**(1), 60 (1993). Presented at the American Physical Society March Meeting, Seattle, 1993.
31. "Preparation and Properties of BaKBiO-Insulator-BaKBiO Trilayer Junctions", A. Kussmaul, E. S. Hellman, E. H. Hartford, Jr., S. Martin and P. Tedrow, *Bull. Am. Phys. Soc.* **38**(1), 160 (1993). Presented at the American Physical Society March Meeting, Seattle, 1993.
32. "Analysis of the Directly Measured Absorptivity of Epitaxial Films of $Ba_{0.6}K_{0.4}BiO_3$ ", D. Miller, P. L. Richards, E. J. Nicol, E. S. Hellman, E. H. Hartford, Jr., C. E. Platt, R. A. Schweinfurth, D. J. Van Harlingen and J. Amano, presented at the American Physical Society March Meeting, Seattle, 1993.
33. "Tunneling Properties of Artificial $Ba_{1-x}K_xBiO_3$ Grain Boundaries", A. Kussmaul, E. S. Hellman, E. H. Hartford, Jr., and P. M. Tedrow, presented at the International Superconductive Electronics Conference, Boulder, August 1993.
34. "Engineering New Materials by Molecular Beam Epitaxy: A Look at Oxides" E. S. Hellman, Ceramic Science and Engineering Seminar, Pennsylvania State University, University Park, Pennsylvania, October 14 1993.
35. "SIS Tunneling in $Ba_{1-x}K_xBiO_3$ Grain Boundaries", A. Kussmaul, E. S. Hellman, E. H. Hartford, Jr., and P. M. Tedrow, presented at the Fall Meeting of the Materials Research Society, Boston, December 1993.
36. "Origin of the $\phi \approx \pm 9^\circ$ Peaks in $YBa_2Cu_3O_{7-\delta}$ Films Grown on Cubic Zirconia Substrates", D. G. Schlom, E. S. Hellman, E. H. Hartford, Jr. and J. Mannhart, presented at the Fall Meeting of the Materials Research Society, Boston, December 1993.
37. "The $Ba_{1-x}K_xBiO_3$ Surface: A Natural Tunnel Barrier", E. S. Hellman, A. Kussmaul, J. R. Kwo, E. H. Hartford, Jr. and P. M. Tedrow, invited talk at the Spring Meeting of the Materials Research Society, San Francisco, April 1994.
38. "The Far Infrared Energy Gap of BaKBiO Thin Films", F. J. Dunmore, H. D. Drew, E. S. Hellman, E. H. Hartford, Jr. and E. J. Nicol, *Bull. Am. Phys. Soc.* **39**(1), 918 (1994). Presented at the American Physical Society March Meeting, Pittsburgh, 1994.
39. "Transmission Electron Microscopy Study of $Ba_{1-x}K_xBiO_3$ and $Ba_{1-x}Rb_xBiO_3$ Thin Films and their Grain Boundaries" L. Zhao, S.-W. Chan, E. S. Hellman, E. H. Hartford, Jr., and A. Kussmaul, presented at the Fall Meeting of the Materials Research Society, Boston, December 1994.
40. "Evidence for Bipolaron Normal-State Tunneling in $Ba_{1-x}K_xBiO_3$ Native Barrier Tunnel Junctions", E. S. Hellman and E. H. Hartford, Jr., *Bull. Am. Phys. Soc.* **40**(1), 500 (1995). Presented at the American Physical Society March Meeting, San Jose, 1995.

41. "Growth of GaN on Lattice-Matched Oxide Substrates", E. S. Hellman, C. D. Brandle, L. F. Schneemeyer, G. W. Berkstresser, D. N. E. Buchanan, E. H. Hartford, Jr., S. W. Cheong, S. Venzke, and J. M. Phillips, Presented at the Spring Meeting of the Materials Research Society, San Francisco, March 1995.
42. "Gallium Nitride: Desperately Seeking Substrates", E. S. Hellman. Columbia University Materials Science and Metallurgical Engineering Colloquium, Nov 1, 1995.
43. "Far Infrared Magneto-Optical Measurements BaKBiO Thin Films", F. J. Dunmore, S. Wu, H. D. Drew, E. S. Hellman, and E. H. Hartford, Jr., *Bull. Am. Phys. Soc.* **41**(1), 365 (1996). Presented at the American Physical Society March Meeting, St. Louis, 1996.
44. "Two-Particle Normal-State Tunneling in $Ba_{1-x}K_xBiO_3$ Native Barrier Tunnel Junctions", E. S. Hellman. Invited talk at Oxide Superconductor Physics and Nano-Engineering II, part of at SPIE's International Symposium on Lasers and Integrated Optoelectronics, San Jose, 2/96.
45. "2-fold and 3-fold Surface Reconstructions on (0 0 0 1) GaN", E. S. Hellman, D. N. E. Buchanan, presented at the Fall Meeting of the Materials Research Society, Boston, December 1996.
46. "Progress in the Development of Commercial-Grade ScMgAlO₄ Substrates for GaN Epitaxy", E. S. Hellman, C. D. Brandle, A. J. Valentino, G. Berkstresser, D. N. E. Buchanan, H. O'Bryan, presented at the Fourth Wide Bandgap and Nitride Workshop, St. Louis, March 1997.
47. "Exotic and Mundane Substrates for Gallium Nitride Heteroepitaxy", E. S. Hellman, invited talk at the IEEE/LEOS Summer Topical Meeting on Gallium Nitride Materials, Processing and Devices, August 1997, Montreal Canada.