

## CURRICULUM VITAE

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### EDUCATION:

Ph.D., Physics, 1980, Oklahoma State University, Stillwater

M.Sc., Physics, 1970, University of Calcutta, Calcutta

B.Sc., Physics, 1968, University of Calcutta, Calcutta

*Ph.D. Thesis Advisor: Dr. Richard C. Powell, APS Fellow*

### PROFESSIONAL EXPERIENCE:

- 1995- Professor of Physics, University of Texas at San Antonio, San Antonio, Texas
- 2003- Adjunct Professor, Division of Radiological Sciences, University of Texas Health Science Center, San Antonio, Texas
- 1990-1995 Associate Professor of Physics, University of Texas at San Antonio, Texas
- 1984-1990 Assistant Professor of Physics, University of Texas at San Antonio, San Antonio
- 1983-1984 Assistant Professor of Physics, Indiana University-Purdue University, Fort Wayne, Indiana
- 1982-1983 Visiting Assistant Professor, Department of Physics, Oklahoma State University, Stillwater, Oklahoma
- 1980-1982 Postdoctoral Research Fellow, Department of Physics, Oklahoma State University, Stillwater, Oklahoma
- 1971 –1975 Lecturer of Physics, Narendrapur Ramakrishna Mission Residential College and Basirhat College, both affiliated to the University of Calcutta, Calcutta

### AWARD AND HONORS:

1. Recipient of the “**2002 UTSA President’s Distinguished Achievement Award for Research Achievement**”.
2. Recipient of the “**2003 Prize to a Faculty Member for Research in an Undergraduate Institution**” by the American Physical Society.
3. Recipient of the “**Ashbel Smith Professorship**” - 2007-2012.

### ADMINISTRATIVE EXPERIENCE:

- 1996-2000 Chairman, Physics Program, University of Texas at San Antonio, San Antonio, Texas  
2006-2008 Director of the Doctoral Program in Physics  
2006- 2008 Advisor of the Graduate Records of the Doctoral Program in Physics

#### **PATENTS:**

1. Patent Title: "*Apparatus and Method for Cleaning a Wafer*"; **US Patent No. 6,766,813**  
Inventors: Anthony Sayka, **Dhiraj Sardar**, Fred Barrera, and Raylon Yow
2. Patent Title: "*Method and Apparatus for Diagnosing Neovascularized Tissues*" (pending)  
**Inventors: Dhiraj Sardar** and Andrew Tsin

#### **BOOK:**

"Fundamentals of Lasers and Their Applications" – (to be published by Wiley)

#### **BOOK CHAPTER:**

"Tissue-Based Biosensors", Victor Acha, Thomas Andrews, Qin Huang, Dhiraj K. Sardar, and Peter J. Hornsby, in "*Recognition Receptors in Biosensors*", M. Zourob, editor, Springer, New York (2009)

#### **Summer Research Experience:**

- 1993 Invited to the NSF-Sponsored Workshop on Advanced Undergraduate Physics Laboratory Training at Massachusetts Institute of Technology, Cambridge, Massachusetts  
1989 Senior Research Fellow, Naval Research Laboratory, Washington, D.C.  
1988 Faculty Research Fellow, School of Aerospace Medicine, Brooks Air Force Base, San Antonio, Texas  
1987 Faculty Research Fellow and Lecturer, Department of Physics, The University of Texas at Austin, Austin, Texas  
1985 Faculty Research Fellow, Center for Materials Science and Engineering and Department of Electrical and Computer Engineering, University of Texas at Austin, Austin, Texas  
1984 Visiting Assistant Professor, Department of Physics, University of Wisconsin, Madison

#### **PUBLICATIONS:**

##### **A. Refereed Publications in Journals:**

1. **Sardar, D. K.** and R. C. Powell, "Energy Transfer Processes in  $\text{YVO}_4:\text{Nd}^{3+}$ ," Journal of Applied Physics, Vol. **51**, 2829 (1980).
2. Powell, R. C., D. P. Neikerk, and **D. K. Sardar**, "Radiationless Decay Processes of  $\text{Nd}^{3+}$  Ions in Solids," Journal of Optical Society of America, Vol. **70**, 486 (1980).

3. **Sardar, D. K.** and R. C. Powell, "Time-Resolved Site-Selection Spectroscopy Studies of  $\text{NdAl}_3(\text{BO}_3)_4$  Crystal", *Journal of Luminescence*, Vol. **22**, 349 (1981).
4. Shinn, M. D., J. C. Windscheif, **D. K. Sardar**, and W. A. Sibley, "Optical Transitions of  $\text{Er}^{3+}$  Ions in  $\text{RbMgF}_3$  and  $\text{RbMgF}_3:\text{Mn}$ ," *Physical Review B* Vol.**26**, 2371 (1982).
5. **Sardar, D. K.**, M. D. Shinn, and W. A. Sibley, "Radiation Defect Perturbed  $\text{Er}^{3+}$  and  $\text{Mn}^{2+}$  Optical Transitions in  $\text{RbMgF}_3$ ," *Physical Review B*, Vol. **26**, 2382 (1982).
6. Alcala, R., **D. K. Sardar**, and W. A. Sibley, "Optical Transitions of  $\text{Eu}^{2+}$  Ions in  $\text{RbMgF}_3$  Crystals", *Journal of Luminescence*, Vol. **27**, 273 (1982).
7. **Sardar, D. K.**, R. Alcala, and W. A. Sibley, "Optical Absorption and Emission from Irradiated  $\text{RbMgF}_3:\text{Eu}^{2+}$ ," *Journal of Luminescence*, Vol. **27**, 401 (1982).
8. **Sardar, D. K.**, M. F. Becker, and R. M. Walser, "Multi-Pulse Laser Damage of GaAs Surfaces," *Journal of Applied Physics*, Vol.**62**, 3688 (1987).
9. Downer, M. C., G. W. Burdick\*, and **D. K. Sardar**, "A New Contribution to Spin-Forbidden Rare Earth Optical Transition Intensities:  $\text{Gd}^{3+}$  and  $\text{Eu}^{3+}$ ," *Journal of Chemical Physics*, Vol. **89**, 1787 (1988).
10. Allik, T. H, S. A. Stewart, **D. K. Sardar**, G. J. Quarles, R. C. Powell, M. R. Kokta, W. W. Hovis, and A. A. Pinto, "Preparation, Structure and Spectroscopic Properties of  $\text{Nd}^{3+}:[\text{La}_{1-x}\text{Lu}_x]_3[\text{Lu}_{1-y}\text{Gay}]_2\text{Ga}_3\text{O}_{12}$  Crystals," *Physical Review B*, Vol. **37**, 9129 (1988).
11. Burdick\*, G. W., M. C. Downer, and **D. K. Sardar**, "A New Contribution to Spin-Forbidden Rare Earth Optical Transition Intensities: Analysis of All Trivalent Lanthanides," *Journal of Chemical Physics*, Vol. **91**, 1511 (1989).
12. Burdick\*, G. W., M. C. Downer, and **D. K. Sardar**, "The Role of Excited Configurations in Linear Rare Earth Optical Transition Intensities," *Electrochemical Society*, Vol. **9**, 121 (1990).
13. **Sardar, D. K.**, B. Nemati\*, and F. J. Barrera\*, "Use of Polarization to Separate On-axis Scattered and Unscattered Light in Red Blood Cells," *Biomedical Optics '91 of SPIE Vol. 1427: Laser-Tissue Interaction II*, 374-380 (1991).
13. **Sardar, D. K.**, "Electron Irradiation Damage in Pure and Impurity-Doped  $\text{RbMgF}_3$  Crystals," *Physica Status Solidi (b)*, Vol. **171**, 39 (1992).
14. **Sardar, D. K.**, R. C. Velarde-Montecinos\*\*, and S. Vizcarra\*, "Spectroscopic Properties of  $\text{Nd}^{3+}$  in  $\text{CaF}_2$ ," *Physica Status Solidi (a)*, Vol. **136**, 555 (1993).
15. **Sardar, D. K.**, B. M. Zapata\*, and C. Howard\*, "Optical Absorption of Untreated and Laser-Irradiated Tissues," *Lasers in Medical Sciences*, Vol. **8**, 205 (1993).
16. **Sardar, D. K.**, S. Vizcarra\*, M. A. Islam\*, T. H. Allik, E. J. Sharp, and A. A. Pinto, "Characterization of Spectroscopic Properties of  $\text{Nd}^{3+}:\text{CaZn}_2\text{Y}_2\text{Ge}_3\text{O}_{12}$ ," *Journal of Luminescence*, Vol. **60 & 61**, 97 (1994).
17. **Sardar, D. S.**, S. Vizcarra\*, M. A. Mohammad\*, T. H. Allik, E. J. Sharp, and A. A. Pinto,

- "Spectroscopic Properties and Effects of Color Centers on the Laser Performance of  $\text{Nd}^{3+}:\text{CaZn}_2\text{Y}_2\text{Ge}_3\text{O}_{12}$  (CAZGAR)," *Journal of Optical Materials*, Vol. **3**, 257 (1994).
18. **Sardar, D.K.** and P.D. Bella\*, "Optical Characterization of  $\text{Nd}^{3+}:\text{Sr}_5(\text{VO}_4)_3\text{F}$ ," *Journal of Applied Physics*, Vol. **76**, 5900 (1994).
  19. **Sardar, D. K.** and S. C. Stubblefield\*, "Spectroscopic Characterization of  $\text{Nd}^{3+}:\text{BAMGAR}$  Crystal," *Physica Status Solidi*, Vol.**152**, 549 (1995).
  20. **Sardar, D. K.** and L. B. Levy\*, "Comparative Evaluation of Absorption Coefficients of  $\text{KCl}:\text{Eu}^{2+}$  and  $\text{CaF}_2:\text{Eu}^{2+}$  Using a Spectrophotometer and an Integrating Sphere," *Journal of Applied Physics*, Vol. **79**, 1759 (1996).
  21. **Sardar, D. K.** and S. C. Stubblefield\*, "Characterization of Stark Components and Peak Emission Cross Sections of Intermanifold and Inter-Stark Transitions of  $\text{Nd}^{3+}$  in  $\text{Ba}_{0.25}\text{Mg}_{2.75}\text{Y}_2\text{Ge}_3\text{O}_{12}$ ," *Journal of Applied Physics*, Vol. **80**, 5275 (1996).
  22. **Sardar, D. K.** and P. D. Bella\*, "Stark Components of Lower-lying Manifolds and Emission Cross Sections of Principal Intermanifold and Inter-Stark Transitions of Trivalent Neodymium in Strontium Fluorovanadate," *Physical Review B*, Vol. **55**, 2859 (1997).
  23. **Sardar, D. K.** and L. B. Levy\*, "Optical Properties of Whole Blood," *Lasers in Medical Sciences*, Vol. **13**, 106-111 (1998).
  24. **Sardar, D. K.** and S.C. Stubblefield\*, "Temperature Dependencies of Linewidths, Positions and Line Shifts of Spectral Transitions of Trivalent Neodymium Ions in Barium Magnesium Yttrium Germanate Laser Host," *Journal of Applied Physics*, Vol. **83**, 1195-1199 (1998).
  25. **Sardar, D. K.** and R. M. Yow\*, "Optical characterization of inter-Stark energy levels and effects of temperature on sharp emission lines of  $\text{Nd}^{3+}$  in  $\text{CaZn}_2\text{Y}_2\text{Ge}_3\text{O}_{12}$ ," *Journal of Optical Materials*, Vol. **10**, 191-199 (1998).
  26. **Sardar, D. K.** and R. M. Yow\*, "Inter-Stark Energy Levels and Effects of Temperature on Sharp Emission Lines of  $\text{Nd}^{3+}$  in  $\text{LiYF}_4$ ," *Physica Status Solidi*, Vol. **173**, 521-534 (1999).
  27. **Sardar, D. K.** and S. C. Stubblefield\*, "Phonon Effects on Sharp Spectral Lines for Inter-Stark Transitions of Trivalent Neodymium Ions in Strontium Fluorovanadate," *Physical Review B*, Vol. **60**, 14724-14731 (1999).
  28. **Sardar, D. K.** and R. M. Yow\*, "Stark Components of  $^4\text{F}_{3/2}$ ,  $^4\text{I}_{9/2}$  and  $^4\text{I}_{11/2}$  Manifold Energy Levels and Effects of Temperature on the Laser Transitions of  $\text{Nd}^{3+}$  in  $\text{YVO}_4$ ," *Journal of Optical Materials*, Vol. **14**, 5-11 (2000).
  29. **Sardar, D. K.**, F. S. Salinas\*, and R. M. Yow\*, "Stark Effects on the Spectrum of Trivalent Praseodymium Ions in Strontium Fluorapatite Laser Host," *Journal of Applied Physics*, Vol. **88**, 4688-4692 (2000).
  30. **Sardar, D. K.**, R. M. Yow\*, and A. Sayka\*, "Crystal-field Splittings and Phonon Effects on a Sharp Emission Line within a Manifold of  $\text{Pr}^{3+}$  in  $\text{Ca}_5(\text{PO}_4)_3\text{F}$  Laser Host," *Journal of Applied Physics*, Vol. **223**, 691-700 (2001).

31. **Sardar, D. K.**, M. L. Mayo\*, and R. D. Glickman, "Optical Characterization of Melanin," *Journal of Biomedical Optics*, Vol. **6**, 404-411 (2001).
32. **Sardar, D. K.**, R. M. Yow\*, A. Sayka\*, and M. L. Mayo\*, "Optical Characterization of Positive Photoresist," *Semiconductor International*, Vol. **24**, 163-174 (2001).
33. Gruber, J. B., T. A. Reynolds, T. Alekel, **D. K. Sardar**, B. Zandi, and D. Keszler, "Spectra and Energy Levels of  $\text{Co}^{2+}$  in Zinc Metaborate," *Physical Review B*, Vol. **64**, 045111:1-7 (2001).
34. **Sardar, D. K.**, M. L. Mayo\*, and R. M. Yow\*, "Optical Characterization of a Laser Dye in a Solid State Host," *Journal of Applied Physics*, Vol. **89**, 7739-7744 (2001).
35. **Sardar, D. K.** and R. M. Yow\*, and F. S. Salinas\*, "Stark Components of Lower-lying manifolds and Phonon Effects on Sharp Spectral Lines for Inter-Stark Transitions of  $\text{Nd}^{3+}$  in LLGG Crystal Host," *Journal of Optical Materials*, Vol. **18**, 301-308 (2001).
36. Gruber, J. B., **D. K. Sardar**, L. D. Merkle, B. Zandi, and R. Jarman, and J. A. Hutchinson, "Spectroscopic Properties of  $\text{CaF}_2:\text{U}^{4+}$  as a Saturable Absorber," *Journal of Applied Physics*, Vol. **90**, 3965-3972 (2001).
37. **Sardar, D. K.**, F. Castano\*, J. A. French\*, J. B. Gruber, T. A. Reynolds, T. Alekel, D. A. Keszler, and B.L. Clark, "Spectroscopic and Laser Properties of  $\text{Nd}^{3+}$  in  $\text{LaSc}_3(\text{BO}_3)_4$  Host," *Journal of Applied Physics*, Vol. **90**, 4997-5001 (2001).
38. **Sardar, D. K.** and F. Castano\*, "Characterization of Spectroscopic and Laser Properties of  $\text{Pr}^{3+}$  in  $\text{Sr}_5(\text{PO}_4)_3$  Crystal," *Journal of Applied Physics*, Vol. **91**, 911-915 (2002).
39. **Sardar, D. K.**, J. B. Gruber, B. Zandi, M. Ferry, and M. R. Kokta, "Spectroscopic Properties of  $\text{Co}^{2+}$  in Related Spinels," *Journal of Applied Physics*, Vol. **91**, 4846-4852 (2002).
40. **Sardar, D. K.**, A. Sayka\*, W. M. Bradley\*, J. C. Perez\*, "Optical Characterization of i-Line Photoresist," *Semiconductor International*, Vol. **25**, Web Exclusive :1-8 (2002).
41. **Sardar, D. K.**, and F. S. Salinas\*, "Optical Properties of a Laser Dye in a Solid State Polymeric Host," *Journal of Applied Physics*, Vol. **91**, 9598-9602 (2002).
42. **Sardar, D. K.**, J. A. French\*, F. Castano\*, and A. Sayka\*, "Temperature Effects on 1.0 and 1.3  $\mu\text{m}$  Emission Lines of  $\text{Nd}^{3+}$  in  $\text{LaSc}_3(\text{BO}_3)_4$  Crystal Host," *Journal of Applied Physics*, Vol. **91**, 9629-9634 (2002).
43. **Sardar, D. K.**, J. B. Gruber, B. Zandi, J. A. Hutchinson, and C. W. Trussell, "Judd-Ofelt Analysis of the  $\text{Er}^{3+}$  ( $4f^{3+}$ ) absorption intensities in Phosphate Glass:  $\text{Er}^{3+}$ ,  $\text{Yb}^{3+}$ ," *Journal of Applied Physics*, Vol. **93**, 2041-2046 (2003).
44. **Sardar, D. K.**, W. M. Bradley\*, J. C. Perez\*, J. B. Gruber, B. Zandi, J. A. Hutchinson, C. W. Trussell, and M.R. Kokta, "Judd-Ofelt Analysis of the  $\text{Er}^{3+}$  ( $4f^{11}$ ) Absorption Intensities in  $\text{Er}^{3+}$ -Doped Garnets," *Journal of Applied Physics*, Vol. **93**, 2602-2607 (2003).
45. Gruber, J. B., **D. K. Sardar**, B. Zandi, J. A. Hutchinson, and C. W. Trussell, "Spectra and Energy Levels of  $\text{Er}^{3+}$  ( $4f^{11}$ ) in  $\text{Gd}_3\text{Ga}_5\text{O}_{12}$ ," *Journal of Applied Physics*, Vol. **93**, 3137-3140

- (2003).
46. Gruber, J. B., **D. K. Sardar**, B. Zandi, T. A. Reynolds, T. Alekel, and D. A. Keszler, "Spectra and Energy Levels of  $\text{Nd}^{3+}$  in  $\text{LaSc}_3(\text{BO}_3)_4$ ," *Journal of Applied Physics*, Vol. **93**, 3345-3351 (2003).
  47. Gruber, J. B., **D. K. Sardar**, B. Zandi, J. A. Hutchinson, and C. W. Trussell, "Modeling the Absorption Spectra of  $\text{Er}^{3+}$  and  $\text{Yb}^{3+}$  in Phosphate Glass," *Journal of Applied Physics*, Vol. **8**, 4835-4840 (2003).
  48. Gruber, J. B., **D. K. Sardar**, C. C. Russell, R. M. Yow, B. Zandi, and E. P. Kokanyan, "Spectra and Energy Levels of  $\text{Er}^{3+}$  ( $4f^{11}$ ) in  $\text{NaBi}(\text{WO}_4)_2$ ," *Journal of Applied Physics*, Vol. **94**, 7128-7135 (2003).
  49. **Sardar, D. K.**, W. M. Bradley\*, J. C. Perez\*, and A. T. C. Tsin, "Optical Characterization of Bovine Retinal Tissues," *Journal of Biomedical Optics*, Vol. **9**, 624-631 (2004).
  50. **Sardar, D. K.**, W. M. Bradley\*, R. M. Yow\*, J. B. Gruber, and B. Zandi, "Optical Transitions and Absorption Intensities of  $\text{Dy}^{3+}$  ( $4f^9$ ) in YSGG laser Host," *Journal of Luminescence*, Vol. **106**, 195-203 (2004).
  51. **Sardar, D. K.**, C. C. Russell\*, R. M. Yow\*, J. B. Gruber, Zandi, and E. P. Kokanyan, "Spectroscopic Analysis of the  $\text{Er}^{3+}$  ( $4f^{11}$ ) Absorption Intensities in  $\text{NaBi}(\text{WO}_4)_2$ ," *Journal of Applied Physics*, Vol. **95**, 1180-1184 (2004).
  52. **Sardar, D. K.** and C. C. Russell\*, "Optical Transitions, Absorption Intensities, and Inter-manifold Emission Cross-sections of  $\text{Pr}^{3+}$  ( $4f^2$ ) in  $\text{Ca}_5(\text{PO}_4)_3\text{F}$  Caser Host," *Journal of Applied Physics*, Vol. **95**, 5334-5339 (2004).
  53. Gruber, J. B., **D. K. Sardar**, B. Zandi, L. D. Merkle, and E. P. Kokanyan, "Modeling the Crystal-Field Splitting of the Energy Levels of  $\text{Er}^{3+}$  in Charge-Compensated Sites in Lithium Niobate" *Physical Review B*, Vol. **69**, 195103: 1-10 (2004).
  54. **Sardar, D. K.**, A. Sayka\*, and R. M. Yow\*, "Optical Characterization of Positive Deep UV Photoresist," *Semiconductor International*, Web Exclusive, Article ID:CA415043,1-12 (2004).
  55. Gruber, J. B., **D. K. Sardar**, C. C. Russell\*, R. M. Yow\*, and T. H. Allik, "Energy-Level Structure and Spectral Analysis of  $\text{Nd}^{3+}$ ( $4f^3$ ) in Polycrystalline ceramic Garnet  $\text{Y}_3\text{Al}_5\text{O}_{12}$ ," *Journal of Applied Physics*, Vol. **96**, 3050-3056 (2004).
  56. Merkle, L. D., M. Dubinsky, B. Zandi, J. B. Gruber, **D. K. Sardar**, E. P. Kokanyan, V. G. Babajanyan, G.G. Demirkhanyan, and R.B. Kostanyan, "Spectroscopy of Potential Laser Material  $\text{Yb}^{3+}$  in  $\text{NaBi}(\text{WO}_4)_2$ ," *Journal of Optical Materials*, Vol. **27**, 343-349 (2004).
  57. Gruber, J. B., **D. K. Sardar**, T. H. Allik, and B. Zandi, "Spectra and Energy Levels of  $\text{Nd}^{3+}$ ( $4f^3$ ) in Stoichiometric  $\text{NdP}_5\text{O}_{14}$ ," *Journal of Optical Materials*, Vol. **27**, 351-358 (2004).
  58. **Sardar, D. K.**, R. M. Yow\*, C. Kockelenberg\*, A. Sayka\*, and Gruber, J.B., "Spectroscopic

- Analysis of  $\text{Nd}^{3+}(4f^3)$  Absorption Intensities in a Plastic Host (HEMA),” *Polymer International* Vol. **54**, 412-417 (2005).
59. Gruber, J. B., A. S. Nijjar\*, **D. K. Sardar**, R.M. Yow\*, C. C. Russell\*, B. Zandi, and T. H. Allik, “Spectral Analysis and Energy-level Structure of  $\text{Er}^{3+}(4f^{11})$  in Polycrystalline Ceramic Garnet  $\text{Y}_3\text{Al}_5\text{O}_{12}$ ,” *Journal of Applied Physics*, Vol. **97**, 063519: 1-8 (2005).
  60. **Sardar, D. K.**, C. C. Russell\*, J. B. Gruber, and T. H. Allik, “Absorption Intensities and Emission Cross-sections of Principal Inter-manifold and Inter-Stark Transitions of  $\text{Er}^{3+}(4f^2)$  in Ceramic Garnet  $\text{Y}_3\text{Al}_5\text{O}_{12}$ ,” *Journal of Applied Physics*, Vol. **97**, 123501: 1-6 (2005).
  61. **Sardar, D. K.**, F. S. Salinas\*, R. M. Yow\*, and A. T. C. Tsin, “Polarization Characterization of Neovascularized Ocular Tissues,” *Biophysical Journal*, Vol. **89**, 1-3 (2005).
  62. **Sardar, D. K.**, R. M. Yow\*, A. T. C. Tsin, and R. Sardar, “Optical Scattering, Absorption, Polarization Healthy and Neovascularized Human Retinal Tissues,” *Journal of Biomedical Optics*, Vol. **10**, 051501: 1-7 (2005).
  63. **Sardar, D. K.**, C. Kockelenberg\*, R. M. Yow\*, J. B. Gruber, and T. H. Allik, “Optical Absorption Intensities and Intermanifold Emission Cross Sections of Trivalent Erbium Ions in Calcium Fluorophosphate,” *Journal of Applied Physics*, Vol. **98**, 033535: 1 - 7 (2005).
  64. **Sardar, D. K.**, R. M. Yow\*, J. B. Gruber, T. H. Allik, and B. Zandi, “Stark Components of Lower-lying Manifolds and Emission Cross Sections of Intermanifold and Inter-Stark Transitions of  $\text{Nd}^{3+}(4f^3)$  in Polycrystalline Ceramic Garnet  $\text{Y}_3\text{Al}_5\text{O}_{12}$ ,” *Journal of Luminescence*, Vol. **116**, 145-150 (2006).
  65. Gruber, J. B., T. H. Allik, **D. K. Sardar**, R. M. Yow, M. Scipsick, and B. Wechsler, Crystal Growth and Spectroscopic Characterization of  $\text{Yb}^{3+}:\text{LiTaO}_3$ ,” *Journal of Luminescence*, Vol. **117**, 233 - 238 (2006).
  66. Gruber, J. B., **D. K. Sardar**, D. M. Johnson, R. M. Yow\*, C. H. Coeckelenberg\*, A. Nijjar\*, “Ligand-field Splitting of the Energy Levels of  $\text{Nd}^{3+}(4f^3)$  in 2-Hydroxethyl Methacrylate Polymer (HEMA),” *Polymer International*, Vol. **55**, 1007-1012 (2006).
  67. Gruber, J. B., **D. K. Sardar**, R. M. Yow\*, B. Zandi, and A. Burger, “Modeling the Crystal-Field Splitting of Energy Levels of  $\text{Er}^{3+}(4f^{11})$  in Charge-compensated Sites of  $\text{KPb}_2\text{Cl}_5$ ,” *Journal of Applied Physics*, Vol. **100**, 043108: 1 - 6 (2006).
  68. **Sardar, D. K.**, K. L. Nash\*, R. M. Yow\*, and J. B. Gruber, “Absorption Intensities and Emission Cross Sections of  $\text{Tb}^{3+}(4f^8)$  in  $\text{TbAlO}_3$ ,” *Journal of Applied Physics*, Vol. **100**, 083108: 1 - 5 (2006).
  69. **Sardar, D. K.**, D. M. Dee\*, K. L. Nash\*, R. M. Yow\*, and J. B. Gruber, “Optical Absorption Intensity Analysis and Emission Cross Sections for the Intermanifold and the Inter-Stark Transitions of  $\text{Nd}^{3+}(4f^3)$  in Polycrystalline Ceramic  $\text{Y}_2\text{O}_3$ ,” *Journal of Applied Physics*, Vol. **100**, 123106: 1-7 (2006).
  70. **Sardar, D. K.**, R. Nakade\*, A. Sayka\*, and R. M. Yow\*, "Efficient Cleaning of Silicon

- Wafers using Ultrasonic Technology," Controlled Environments – Contamination Control for Life Sciences and Microelectronics, Web Exclusive: 1-8 (2006).
71. **Sardar, D. K.**, G. Y. Swanland\*, R. M. Yow\*, R. J. Thomas, and A. T. C. Tsin, "Optical Properties of Ocular Tissues in the Near Infrared Region," Lasers in Medical Science, Vol. **22**, 46-52 (2007).
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  73. Valiev, U. V., J. B. Gruber, **D. K. Sardar**, B. Zandi, I. S. Kachur, A. K. Mukhammadiev, V. G. Piryatinskaya, V. Y. Sokolov, and I. S. Edel'man, "Zeeman Effect and Stark Splitting of the Electronic States of the Rare-Earth Ion in the Paramagnetic Garnets Tb<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> and Tb<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>," Physics of the Solid State, Vol. **49**, 91-98 (2007).
  74. Gruber, J. B., **D. K. Sardar**, R. M. Yow\*, U. V. Valiev, A. K. Mukhammadiev, V. Y. Sokolov, I. Amin, K. Lenguel, I. S. Kachur, V. G. Piryatinska, and B. Zandi, "Analysis of the Optical and Magneto-Optical Spectra of Tb<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub>," Journal of Applied Physics, Vol. **101**, 023108: 1-14 (2007).
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## **B. Refereed Publications in Proceedings and Technical Digests:**

1. Sibley W.A., **D.K. Sardar**, and R. Alcalá, "Optical Transitions of RbMgF<sub>3</sub>:Eu<sup>2+</sup> and RbMgF<sub>3</sub>:Mn<sup>2+</sup>,Eu<sup>2+</sup>," AIP International Laser Conference Proceedings, Vol. **190**, 758 (1982).
2. **Sardar, D.K.** and R.C. Powell, "Time Resolved Site-Selection Spectroscopy of Nd<sup>3+</sup> ions in a Garnet Crystal," AIP Conference Proceedings, Vol. **146**, 214 (1985).
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5. **Sardar, D.K.**, B. Nemati\*, and F.J. Barrera\*, "Use of Polarization to Separate On-axis Scattered and Unscattered Light in Red Blood Cells," Biomedical Optics '91 of SPIE Vol. **1427: Laser-Tissue Interaction II**, 374-380 (1991).
6. **Sardar, D.K.** and S.C. Stubblefield\*\*, "Phonon Effects on Sharp Spectral Lines for Inter-Stark Transitions of Nd<sup>3+</sup> in Sr<sub>5</sub>(VO<sub>4</sub>)<sub>3</sub>F (S-VAP)," Proceedings of the International Conference on **LASERS '97**, 256 - 261 (1997).
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## **PRESENTATIONS AT PROFESSIONAL CONFERENCES:**

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## **GRANTS AND AWARDS from the followings agencies:**

1. **National Science Foundation**
2. **American Chemical Society - Petroleum Research Fund**
2. **Air Force Research Laboratory (AFRL)**
3. **U.S. Civilian Research and Development Foundation (CRDF)**
4. **San Antonio Life Science Institute (SALSI)**
5. **National Science Foundation** under Center for Biophotonics Science and Technology (CBST)
6. **UTSA Faculty Research Grant**
8. **United States Navy**

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## **Scholarly Activities:**

Reviewed papers for the following journals:

- (i) *Journal of Applied Physics*
- (ii) *Optics Letters*
- (iii) *Journal of Physics and Chemistry of Solids*
- (iv) *Journal of Optical Society of America B*
- (v) *Polymer International*
- (vi) *Optical Materials*
- (vii) *Materials: Chemistry and Physics*
- (viii) *Journal of Alloys and Compounds*

Reviewed Grant Proposals for:

- (1) *National Science Foundation*
- (2) *Israel Science Foundation*
- (3) *Petroleum Research Fund – American Chemical Society.*

Served as a ***Panelist*** to review proposals submitted to the ***National Science Foundation***

## **MEMBERSHIP TO PROFESSIONAL SOCIETIES:**

The Optical Society of America

The American Physical Society

The International Society for Optical Engineering – SPIE