

Professor Steven Praver – CV & Publications Listing:

Professor Praver is Australia's foremost authority on the physics of diamond and related materials. Specifically, he has elucidated the interaction of ion beams with carbon based materials and in so doing has made a significant contribution to our understanding of defects in diamond. These studies are part of a world wide effort to exploit diamond as a high performance semiconductor in harsh, high-power, high radiation environments and more recently to take advantage of the unique properties of colour centres in diamond to make quantum devices. He is a leader in the use of Raman spectroscopy for the analysis of diamond and amorphous carbon materials and has provided clarity and insight into the use of this technique for the analysis of carbons. Most recently, he has shown how it is possible to turn carbon directly into diamond using a solid state reaction without the need for high pressure or plasma treatments. This allows the production of diamond quantum dots which show great promise for applications in quantum communications and quantum computing.

In 2000 he spearheaded the University of Melbourne's entry into the world of quantum computing and Nanotechnology becoming the inaugural director of the Melbourne node of the special research center for quantum computer technology. Under his directorship the node has grown rapidly; it now encompasses four large research programs. New clean room laboratories and state-of-the-art facilities have been constructed. He has been enormously successful in attracting large research grants to the University; funding in 2001 exceeded \$1.7M and has continued at this level ever since. In 2001 he championed the University of Melbourne's participation in a Major National Research Facility (MNRF) entitled NANO: the Nanostructural Analysis Network Organization. These initiatives place the University of Melbourne in a premier position to take a leading role in the Nanotechnology revolution. Most recently, he paired with Dr Shane Huntington to establish Quantum Communications Victoria, a joint venture supported by the Victorian Government with an initial grant of \$3.3M to develop a commercially viable single photon source based on diamond. Such a source is the missing critical element in realizing absolutely secure communications that are protected from eavesdropping by the fundamental laws of quantum mechanics. In 2005, he won a competitive grant (\$1.2M) from the USA Army Research office to further develop the base technologies for a diamond quantum computer.

Professor Praver's most recent work has been dedicated to the realization of unique quantum devices based on diamond which is based on the realization that diamond possesses unique quantum properties such as the ability to read out a single spin at room temperature. The enterprise to construct practical diamond quantum devices is firmly based on the extensive and fundamental work Professor Praver performed in the 1990s to understand the interaction of energetic ions with diamond and diamond-like materials and the tools he developed to analyse these materials.

In summary, Professor Praver is one of Australia's pre-eminent materials physicists who is championing the application of his knowledge base to the emerging field of Nanotechnology. His research collaborations stretch from the USA to Israel, Thailand, and Singapore. His publications and international reputation have helped establish the University of Melbourne as a Centre of Excellence for diamond based research. He has and will continue to play a pivotal role in the Nanotechnology revolution.

Qualifications:

- BSc (1st class Honours), Monash University, 1980, Double Major: Physics and Computing
- PhD, 1985, Monash University, "Elastic, Dielectric and Thermal Expansion Properties of CsH₂PO₄". Supervisor: Professor T.F. Smith
- DSc. 1997, University of Melbourne, "Synthesis, Characterization and Modification of Carbon Allotropes".

Positions Held:

2002- present	Professor, School of Physics, University of Melbourne Associate Director and Chair, Physical Sciences Panel, Nanostructural Analysis Network Organization (NANO). Program Manager, Centre of Excellence for Quantum Computer Technology
2000-2002:	Director, Melbourne Node of the Special Research Centre for Quantum Computing Technology.
1996-2002:	Associate Professor and Reader, School of Physics, University of Melbourne
1992-1995:	Senior Lecturer, School of Physics, The University of Melbourne.
1991:	Tenured Lecturer, School of Physics, The University of Melbourne.
1988-1990:	Senior Lecturer, Department of Applied Physics and Microelectronics and Materials Research Centre, Royal Melbourne Institute of Technology.
1987-1988:	Lecturer, Department of Applied Physics, Royal Melbourne Institute of Technology.
1985-1987:	Postdoctoral Fellow at The Technion, Haifa, Israel, and the C.S.I.R.O. Division of Materials Science and Technology.
1981-1985:	Tutor, Physics and Mathematics (1st Year University) whilst enrolled as a PhD Student.

Visiting Positions:

Nov 2003	Visiting Professor, Nanyang University of Technology
Jan-June 2002	Visiting Professor, School of Electrical Engineering, The Technion, Haifa, Israel
May 1998	Visiting Professor, Solid State Institute, The Technion, Haifa, Israel.
June 1997	Visiting Professor, Microelectronics Center and Department of Electrical Engineering, The Technion, Haifa, Israel.
June 1996	Visiting Professor, Solid State Institute, The Technion, Haifa, Israel
Oct 1995 - Dec 1995:	Visiting Professor, Dept. of Physics, Massachusetts Institute of Technology, Cambridge, MA.
April 1995 - Aug 1995:	Visiting Scientist, Naval Research Laboratories, Washington DC, USA.
Dec 1994 - March 1995:	Visiting Professor, Solid State Institute, Technion, Haifa, Israel.
Dec 1989 - Feb 1990:	Visiting Senior Research Scientist, Solid State Institute, The Technion, Haifa, Israel.

Major Research Grants:

Grant	Source	Years	Total funding (,000K)
Innovations in the Synthesis, Annealing and Applications of Diamond (with D. Jamieson)	ARC	1998-2000	226
Advanced Materials Characterization Using Scanning Probe Microscopies (with T. Finlayson)	ARC RIEFP	1998	660
Pulsed Laser Deposition of Advanced Materials	ARC (RIEFP)	1999	820
Scanning Probe Microscopy of Electron Emitting Diamond Surfaces	ARC	1999-2001	260
Diamond Quantum Dots Fabricated by Ion implantation	ARC	2003-2005	290
Special Research Centre for Quantum Computer Technology: (Melbourne Node) led by Clark et al	ARC (SRC)	2000-2002	1,100 (Melb node component)
Centre of Excellence for Quantum Computer Technology (led by Clark et al)	ARC (COE)	2003-2007	14M total funding, Melbourne node: 5M
New Ways of Seeing: Raman and Infrared Microscopy	ARC (LIEF)	2001	1,230
Quantum Communications Victoria (with Huntington and Hollenberg)	Victorian Government (STI)	2005-2007	3,330
Quantum Computing in Diamond	Army Research Office (USA)	2005-2007	1,200
Nanostructural Analysis Network Organization	Major National Research Facility	2002-2006	11,500 total, Melbourne node: 870
Carbon Nanocomposite as electron source in vacuum microelectronics (led by D. Lau)	A-STAR (Singapore)	2003-2005	160

Memberships Of Professional Organizations:

- Member, Australian Institute of Physics.
- Member, Materials Research Society.
- Member, Australian Vacuum Society
- Committee Member, Australian Technion Society.
- Trustee, Australia-Israel Scientific Exchange Foundation.

Editorial Boards

2002 – present Associate Editor, Diamond and Related Materials.

Memberships Of Advisory Panels For International Conferences

- 2005: Member International Program Committee, Diamond, 2003, 2004, 2005
Member, International Advisory Committee, CIMTEC, 2006
- 2002: Member, Program Committee, Diamond 2002
Member, International Advisory Committee, International Symposium on Detonation
Nanodiamonds: Technology, Properties and Applications, St Petersburg, July 7-9, (2003).
- 2001: Member, Program Committee, Diamond 2001
- 2000: Chair, 8th International Conference on New Diamond Science and Technology
Member, Program Committee, Diamond 2000
- 1999: Member, Program Committee, Diamond 99, September, 1999
Member, Program Committee, 7th International Conference on New Diamond Science and
Technology, Hong Kong, , July, 2000
Member, Advisory Panel for Taiwan Diamond 2000.
- 1998: Member, Advisory Committee Symposium IV, CIMTEC 98: 9th International Conference On
Modern Materials, and Technologies, Florence, June, 1998
Member, Program Committee, 6th International Conference on New Diamond Science and
Technology, Pretoria, September, 1998
Member, Program Committee, Diamond 98, Crete, September, 1998
Member, Organizing Committee, 3rd Australian Conference on Vibrational Spectroscopy,
October, 1998
- 1997: Member, Program Committee, Diamond 97, Edinburgh, August, 1997
- 1995 Member, Scientific advisory committee of the International Ion Beam Modification of
Materials Meeting, Canberra, Feb., 1995

Consulting

- Argyle Diamond Sales Pty. Ltd.,
- CRA - Advanced Technical Development.
- The Royal Children's Hospital, Department of Otolaryngology,
- CRESTEL Pty. Ltd.,
- Future Enterprises Pty. Ltd.
- Thai-Australia Science and Engineering Assistance Project
- QPSX
- Office of fair trading.

Reviewing

- Journal of Materials Research
- Thin Solid Films
- Diamond and Related Materials
- Applied Physics Letters
- Journal of Applied Physics
- Journal of Crystal Growth
- Physical Review Letters and Physical Review A and B.
- Surface Science
- The Australian Research Council
- Singapore Research Council

Appearances In The Public Media:

- When Physics Meets the Artful Dodger, Uni News, 1999.

- Race to break the Cyber Speed Limit, 'The Age', March 7, 2000, page 3 of IT section.
- Interviewed on radio national 'Breakfast', about the Quantum Computer, 23 March, 2000.

Publication List

Refereed Publications in Journals

Irving, M. A., Prawer, S., Smith, T. F. and Finlayson, T. R. - "The Room Temperature Elastic Constants of Cesium Thiocyanate". Aust.J.Phys. 36, 85-92 (1983)

Prawer, S., Smith, T. F. and Finlayson, T. R. - "The Room Temperature Elastic Behaviour of CsH₂PO₄". Aust.J.Phys. 38, 63 - 83 (1985).

Prawer, S., Kalish, R. and Adel, M. - "Pulsed Laser Treatment of Diamond-Like Carbon Films" Appl.Phys.Lett., 48, 1585-1587 (1986).

Prawer, S., Kalish, R., Adel, M., and Richter, V. - "Ion Beam Induced Conductivity and Structural Changes in Diamond-Like Carbon Coatings". Appl.Phys.Lett. 49, 1157-1159 (1986).

Prawer, S., Kalish, R., Adel, M. and Richter, V. - "Effects of Heavy Ion Irradiation on Amorphous Hydrogenated (Diamond-Like) Carbon Films. J.Appl.Phys. 61, 4492-4500 (1987).

Adel, M., Kalish, R. and Prawer, S. - "Electron Spin Resonance Investigation of Ion Beam Modified Amorphous Hydrogenated (Diamond-Like) Carbon". J.Appl.Phys. 62, 4096-4099 (1987).

Prawer, S. and Wilkins, S.W. - "An Optical Alignment Device for X-ray Diffraction Systems'. Rev.Sci.Instr. 59, 501-502 (1988).

Prawer, S. and Rossouw, C. - "Structural Investigation of Helium Ion Beam Irradiated Glassy Carbon". J.Appl.Phys. 63, 4435-4439 (1988).

Hoffman, A., Paterson, P.J.K. and Prawer, S. - "Effect of Low Energy Ion Irradiation on the Secondary Electron Emission Spectrum of Highly Oriented Pyrolytic Graphite". Nucl.Inst. & Meth. in Phys.Res. B51, 226 - 231 (1990).

Prawer, S., Ninio, F. and Blanchonette, I. - "Raman Spectroscopic Investigation of Ion Beam Irradiated Glassy Carbon". J,Appl.Phys. 68, 2361-2366 (1990).

Hoffman, A., Paterson, P.J.K. and Prawer, S. - "Comparison of the Effect of Argon and Hydrogen Ion Bombardment on the Diamond (100) Surface as Studied by AES and EELS" Nucl.Instr.& Meth. in Phys.Res. B52, 63-67 (1990)

Hoffman, A., Nyberg, G.L. and Prawer, S. - "High Energy Angle Resolved Secondary Electron Emission Spectroscopy of Highly Oriented Pyrolytic Graphite". J.Phys. - Condensed Matter 2, 8099 - 8106 (1990).

Prawer, S., Hoffman, A. and Kalish, R. - "Ion Beam Induced Conductivity in Chemically Vapour Deposited Diamond Films". Appl.Phys.Lett. 57, 2187-2189 (1990).

Hoffman, A., Prawer, S. and Folman, M. - "Secondary Electron Emission Spectroscopy: A Sensitive and Novel Method for the Characterization of the Near Surface Region of Diamond and Diamond Thin Films. Appl.Phys.Letts. 58, 361-363 (1991).

Hoffman, A., Folman, M. and Prawer, S. - "Secondary Electron Emission Spectrum of Diamond, Phys. Rev. B 44: 4640-4643, 1991.

Prawer, S. Hoffman, A., Stuart, S.A., Manory, R., Weiser, P., Lim, C., Long, J. and Ninio, F. - "Correlation Between Crystalline Perfection and Film Purity for CVD Diamond Thin Films Grown on Fused Quartz Substrates", J. Appl. Phys. 69: 6625-6631, 1991.

Hoffman, A., Prawer, S. and Kalish, R. - "Secondary Electron Emission Spectroscopy and Total Electron Yield Measurements for the Assessment of Near Surface Damage in Diamond", *Diamond and Related Materials* Vol 1: 440-450 (1992).

Hoffman, A., Prawer, S. and Kalish, R. - "Structural Transformation of Diamond Induced by 1 keV Ar Ion Irradiation as Studied by Auger and Secondary Electron Spectroscopies and Total Secondary Electron Yield Measurements", *Phys. Rev. B* 45: 12736-12745 (1992).

Prawer, S., Hoffman, A., Petravic, M. and Kalish, R. - "Conductivity in Insulators due to Implantation of Conducting Species", *J. Appl. Phys.*: 73, 3841 - 3846 (1993).

Prawer, S., Jamieson, D.J., Kalish, R. - "Investigation of diamond near the graphite-diamond liquid carbon triple point", *Physical Review Letters* 69: 2991-2994 (1992).

McCulloch, D., Hoffman, A. and Prawer, S. - "Ion Beam Induced Compaction in Glassy Carbon", *Journal of Applied Physics* 74: 135-138 (1993).

Stuart, S.A., Prawer, S. and Weiser, P. - "Growth sector dependence of fine structure in the first order Raman diamond line from large isolated chemical vapour deposited diamond crystals", *Applied Physics Letters*: 62, 1227 - 1229 (1993).

Weiser, P., Prawer, S., Hoffman, A., Manory, R., Paterson, P., and Stuart, S-A. - "Carbon Diffusion in Uncoated and TiN Coated Iron Substrates During Microwave Plasma Assisted Chemical Vapour Deposition of Diamond", *J. Applied Physics* 72: 4643-4647 (1992).

Stuart, S.A., Cholewa, M., Saint, A., Prawer, S., Legge, G.J.F. and Weirup, D. - "Investigation of isolated chemical vapour deposited diamonds using STIM tomography" *Nucl. Inst. and Meths. in Physics Research*: B77, 234 - 238 (1993).

Piekarczyk, W. and Prawer, S. - "Role of atomic hydrogen in preventing surface reconstruction and sp² bond formation during chemical vapour deposition of diamond" *Diamond and Related Materials* 2: 41-47 (1993).

Stuart, S-A., Prawer, S. and Weiser, P.S. - "Variation of the Raman Diamond Lineshape with Crystallographic Orientation of Isolated CVD Diamond Crystals", *Diamond and Related Materials*: 2, 753 - 757 (1993).

Jamieson, D.N., Prawer, S., Dooley, S.P. and Kalish, R. - "Regrowth zones in laser annealed radiation damaged diamond" *Nucl. Inst. Meths. in Phys. Res*: B77, 457 - 462 (1993).

Dooley, S., Jamieson, D.N. and Prawer, S. - "He⁺ and H⁺ Microbeam Damage, Swelling and Annealing in Diamond", *Nucl. Inst. Meth. in Phys. Res*: B77, 484 - 491 (1993).

McCulloch, D., Hoffman, A., Evans, P.J. and Prawer, S. - "Structural and chemical bonding investigation of tungsten implanted glassy carbon" *Nuclear Instruments and Methods in Physics Research B* 80/81: 1460-1463 (1993).

McCulloch, D., Prawer, S., Hoffman, A. and Sood, D. - "Cross-sectional TEM investigation of Xe irradiated glassy carbon" *Nuclear Instruments and Methods in Physics Research B* 80/81: 1480-1484 (1993).

McCulloch, D. and Prawer S. - "Bubbles in Xe implanted glassy carbon" *Journal of Computer Aided Microscopy* 4: 281-285 (1992).

Prawer, S., Dvir, A., Balfour, L.S. and Kalish, R. - "Infra-Red Emission from Selected Areas in Ion Beam Irradiated Diamond", *Applied Optics* 34: 636-640 (1995).

Piekarczyk, W. and Prawer, S. - "On the Behaviour of Diamond Crystal Surfaces During Heating in Fluorine Gas and Fluorocarbon-Fluorine Gas Mixtures", *Diamond and Related Materials* 3: 66-74 (1994).

Stuart, S. and Prawer S. - "TEM and CBED Observation of Defects in Isolated Diamond Crystals Synthesized by Microwave Plasma Chemical Vapour Deposition on Tungsten Wire Tips", *Journal of Computer Aided Microscopy* 4: 201-204 (1992).

Anderson, G., Prawer, S., Johnston, P. and McCulloch, D. - "The Effect of Carbon and Nitrogen Implantation on the Abrasion Resistance of Type IIa (110) Diamond", *Nuclear Instruments and Methods in Physics Research B80/81*: 1451-1455 (1993).

Huang X., Ninio, F., Brown, L.J. and Prawer S. - "Studies of the Surface Properties of 1.5 MeV Si-implanted Silicon by Raman Scattering", *J. Appl. Physics*: vol. 77, 5910-5915 (1995).

Kalish, R., Samoiloff, A., Hoffman, A., Uzan-Saguy, C., McCulloch, D. and Prawer, S. - "Disintegration of C60 by heavy ion irradiation", *Phys. Rev. B* 48: 18235-18238 (1993).

Prawer, S., Uzan-Saguy, C., Braunstein, G. and Kalish, R. - "Can n-type doping of diamond be achieved by Li or Na ion implantation", *Appl. Phys. Letts.* 63: 2502 - 2504 (1993).

Piekarczyk, W. and Prawer, S. - "Diamond vapour interface and processes proceeding on it during growth of diamond crystals II. Diamond (011) face", *J. of Crystal Growth* 135: 172-182 (1994).

Allen, M.G., Prawer, S., Jamieson, D.N. and Kalish, R. - "Pulsed laser annealing of P implanted diamond", *Appl. Phys. Letts.* 63: 2062 - 2064 (1993).

Bursill, L.A., Stadelman, P.A., Peng JuLin and Prawer, S. - "Surface Plasmon observed for carbon nanotubes", *Phys. Rev. B*49: 2882-2887 (1994).

Bettiol, A.A., Jamieson, D.N., Prawer, S. and Allen, M.G. - "Ion beam induced luminescence from diamond and other crystals using a nuclear microbeam", *Nucl. Instr. Meths. Phys.* B85: 775-779 (1994).

Cholewa, M., Saint, A., Prawer, S., Laird, J.S., Legge, G.J.F., Bardos, R.A., Moorhead, G.F., Taylor, G.N., Stuart, S-A. and Howard, J. - High resolution techniques using scanning proton microprobe. *Nucl. Inst. Meth. Phys. Res.* B89: 157-163 (1994).

Weiser, P.S., Prawer, S., Manory, R., Hoffman, A., Evans, P.J. and Paterson, P.J.K. - Chemical vapour deposition of diamond onto steel: The effect of a Ti implant layer. *Surface and Coatings Technology* 71: 167-174 (1995).

McCulloch, P.G., Prawer, S. and Hoffman, A. - Structural investigation of xenon ion beam irradiated glassy carbon. *Phys. Rev. B.* 50: 5905-5917 (1994).

Weiser, P.S., Prawer, S., Hoffman, A., Paterson, P.J.K. and Manory, R. - Chemical vapour deposited diamond films grown on Titanium Nitride coated and uncoated iron substrates. *J. Appl. Phys.* 76: 2164-2168 (1994).

McCulloch, D., McKenzie, D., and Prawer, S. - Compressive stress induced formation of preferred orientation in glassy carbon following high dose carbon implantation. *Phil. Mag. A: Physics of Condensed Matter Defects & Mechanical Properties*, 72, 1031-1091, (1995).

McCulloch, D. and Prawer, S. - The effect of annealing and implantation temperature on the structure of C ion-beam irradiated glassy carbon. *J. Appl. Phys.:* vol 78(5), 3040-3047 (1995).

Prawer, S. and Kalish, R. - Ion beam induced transformation of diamond. *Phys. Rev.* B51: 15711-15722 (1995).

Praver, S., Nugent, K.W., Biggs, S., McCulloch, D., Leong, W.H., Hoffman, A. and Kalish, R. - Ion beam modification of Buckminsterfullerene. *Phys. Rev. B*52: 841-849 (1995)

Praver, S., Nugent, K.W., and Weiser, P.S. - Polarized Raman Spectroscopy of Chemically Vapour Deposited diamond films. *Applied Physics Letters* 65: 2248-2250 (1994).

Weiser, P.S. and Praver, S. - Chemical vapour deposition of diamond onto iron based substrates the use of barrier layers. *Diamond and Related Materials*: vol. 4, 710-713 (1995).

Uzan-Saguy, C., Richter, V., Praver, S. and Kalish, R. - Nature of damage in diamond implanted of low temperatures. *Diamond and Related Materials*: vol. 4 569-574 (1995).

Praver, S. - Ion implantation into diamond and diamond films. *Diamond and Related Materials*: vol. 4 ,862-872 (1995).

Bursill, L.A., Peng, JuLin, Gurarie V.N., Orlov, A.R., and Praver, S.: Carbon Nitride Films Produced by High Energy Shock Plasma Deposition. *J. Mat. Res.:* vol. 10, 2277-2285 (1995).

McCulloch, D.G., Gerstner, E.G., McKenzie, D.R., Praver, S. and Kalish, R. - Ion implantation into tetrahedral amorphous carbon. *Phys. Rev. B*52: 850-857 (1995).

Jamieson, D.N., Praver, S., Nugent, K.W. and Dooley, S. - Cross sectional Raman microscopy of MeV implanted diamond. *Nucl. Inst. Meth in Phys. Res.:* B106, 641-645, (1995).

Withrow, S.P., Williams, J.M., Praver, S. and Barbara, D. - New Carbon Nitride Phase by High Dose N ion implantation in Glassy Carbon, *J. Appl. Physics*: vol 78, 3060-3065 (1995).

McCulloch, D., Marks, N., McKenzie, D. and Praver, S. - Molecular dynamics and experimental studies of preferred orientation induced by compressive stress. *Nucl. Inst. Meth. Phys. Res.:* B106, 545-549, (1995).

Kalish, R. and Praver, S. - Graphitization of diamond by ion impact: fundamentals and Applications. *Nucl. Inst. Meth. Phys. Res.:* B106, 492-499, (1995).

Hoffman, A., Paterson, P.J.K., Johnston, S. and Praver, S. - Ion beam induced modification of fullerene as studied by electron energy loss spectroscopy. *Phys. Rev. B*53: 1573-1578, (1996).

Praver, S., Nugent, K.W., Lifshitz, Y., Lempert, G.D., Grossman, E., Kalish, R. and Avigal, I. - Systematic variation of the Raman spectrum of DLC films as a function of sp³/sp² composition. *Diamond and Related Materials*: vol 5, 433-438, (1996).

Praver, S., Kalish, R., Johnston, C., Chalker, P., Gull, S.J., McCabe, A. and Jones, A.M. - Radiation hardness of DLC films deposited by ion assisted deposition. *Diamond and Related Materials*:, vol 5, 405-409, (1996)

Weiser, P.S., Praver, S., Nugent, K.W., Bettioli, A.A., Kostidis, L.I. and Jamieson, D.N., - Homoepitaxial diamond film growth on ion implanted substrates. *Diamond and Diamond Related Materials*: vol 5, 272-275, (1996).

Harris, S., Weiner, A.M., Nugent K.W., and Praver, S. - Diamond Film Quality: The Effects of the Gas Phase Species Concentration on, the Raman Spectrum, *J. Applied Physics*, vol 80, 2187-2194, (1996).

Praver, S., Jamieson, D.N., and Nugent, KW. - The Raman Spectrum of Amorphous sp³ bonded carbon, *Diamond and Related Materials*, 7, 106-110, (1998)

Gonon, P., Boiko, Y., Praver S., and Jamieson, D.N. - Poole-Frenkel Conduction in Polycrystalline Diamond, *Journal of Applied Physics*, 79, 3778-3780, (1996).

- Gonon, P., Praver S., and Jamieson, D.N. - Photo-induced Conductivity Changes in Polycrystalline Diamond Films - Appl. Phys. Lett, 68, 1238-1240, (1996).
- Boulmer, J., Boucaud, P., Guedj D., Debarre, D., Bouchier, D., Finkman, E., Praver S., Nugent K., Desmur-Larre, A., Godet, C., and Roca I Cabarrocas, P., Realization of Si(1-x-y)GexCy/Si Heterostructures by Pulsed Laser Induced Epitaxy of C+ Implanted Pseudomorphic SiGe Films of a-SiGeC:H films deposited on Si(100), Journal of Crystal Growth, 157, 436-441, (1995).
- Finkman, E., Boulmer, J., Boucaud P., Guedj, C., Bouchier, D., Nugent, K., and Praver, S., - Raman Spectroscopy of SiGeC Layers Obtained by Pulsed Laser Induced Epitaxy - , Applied Surface Science, 106, 171-178, (1996)
- Hoffman, A., Praver, S., and Paterson, P.J.K., An EELS study of the effect of 2 keV Ar+ ion irradiation on thin C60 Films, Surface Science, 352, 374-378, (1996)
- Kalish, R., Praver, S., Uzan-Saguy, C., Adler, J., and Saada, D., "Ion Beam Induced Damage in Diamond: Fundamental Understanding and Practical Applications", Diamond Films and Technology, 6, 337-350, (1997)
- Praver, S., Jamieson, D.N., Walker, R.J., and Kalish, R., " Lattice Substitution of Phosphorous in Diamond by MeV Ion Implantation and Pulsed Laser Annealing", Diamond Films and Technology, 6, 351-358, (1997)
- Gonon, P., Praver, S., Nugent, K.W., Jamieson, D.N., "Radiation Damage Induced by MeV alpha-particles in Polycrystalline Diamond Films", J. Appl. Phys., 80, 5006-5013, (1996)
- Weiser, P.S., Praver, S., and Jamieson, D.N., " Enhanced Diffusion of C in Fe under CVD Diamond Deposition Conditions", Thin Solid Films, 290/291, 185, (1996).
- Gonon, P., Praver, S., and Jamieson, D.N., " Thermally Stimulated Currents in Polycrystalline Diamond Films- Application to Radiation Dosimetry"; Applied Physics Letters, 70(22):2996-2998, (1997).
- Gonon, P., Praver, S., Boiko, Y., and Jamieson, D.N., "Electrical Conduction in Polycrystalline Diamond and the Effects of UV Irradiation", Diamond and Related Materials, 6, 860-864, (1997)
- Gonon, P., Praver, S., Jamieson, D., and Nugent K., "Radiation Hardness of Polycrystalline Diamond", Diamond and Related Materials, 6, 314-319, (1997)
- Boiko, Yu., Praver, S., Gonon, P., and Jamieson, D.N., "Piezoresistivity of B doped CVD Diamond Films", Materials Science B., 46(1-3), 112-114, (1997).
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- McCulloch, D.G., McKenzie, D.R., Praver, S., Merchant, A.R., Gerstner, E.G., and Kalish R., "Ion Beam Modification of Tetrahedral Amorphous Carbon: the Effect of Irradiation Temperature, Diamond and Related Materials, 6, 1622-1628, (1997)
- Beckman, D.R., Saint, A., Jamieson, D.N., and Praver, S., "Spatially Resolved Imaging of Charge Collection Efficiency in CVD Diamond by the Use of Ion Beam Induced Current", Nucl. Inst. Meth. Physics Res. B130., 518-523, (1997)
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- Bursill, L.A., Peng, J.L., and Praver, S., Plasmon Response and Structure of Nanocrystalline Diamond Powder, *Phil. Mag. A.*, 76, 769-781, (1997)
- Kamiya, T., Cholewa, M., Saint, A., Praver, S., Legge, G., Butler, J., and Vestyck, D., "Secondary Electron Emission from B Doped Diamond under Ion Impact: Applications in Single Ion Detection", *Appl. Phys. Lett.*, 71, 1875-1877, (1997)
- Orwa, J., Jamieson, D.N., Nugent, K.W., Praver, S., and Kalish R., "Effects of Damage on Diffusion of Implanted Helium in Diamond Measured By Nuclear Elastic Scattering, *Nucl. Inst. Meth. Phys. Res. B*124, 515-518, (1997).
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- Nugent, K.W., and Praver, S., Confocal Raman Strain Mapping of Isolated Single CVD Diamond Crystals, *Diamond and Related Materials*, 7, 215-221, (1998)
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Invited Lectures At International Conferences

(NB: Items marked with a star are those presentations for which full or partial financial support was provided.)

1. *Prawer, S. - "Strain in Diamond Films and Ion Implanted Diamond", Gordon Conference on Diamond Films, Plymouth State College, New Hampshire, 20-24 June 1994.
2. *Prawer, S. - "Ion Implantation of Diamond", Diamond Films '94, Il Ciocio, Italy, 25-30 September 1994.
3. *Prawer, S., "Lattice substitution of Phosphorous in MeV implanted diamond", Japanese workshop on diamond electronics, Osaka University, March 11, (1996)
4. Prawer, S., "Raman Characterization of Amorphous and Nanocrystalline sp³ Bonded Structures", 1st Specialist meeting on Amorphous Carbon, (SMAC), Cambridge University, July 31-Aug 1, 1997.
5. *Prawer, S, "What is the best way to try and make C₃N₄?", International Union of Materials Research Societies, 4th international conference, Japan, Sept 16-18, (1997).
6. *Prawer, S., "Effective Activation of Dopants Using MeV Ion Implantation", Second Symposium On Diamond Electronics, Osaka, March, (1998).

7. *Prawer S., " Raman Characterization of Diamond and DLC: New Insights", CIMTEC 98, 9th International Conference on Modern Materials and Technologies, Florence, June, (1998).
8. *Prawer S., "Doping of Diamond By Ion Implantation", Sixth International Conference on New Diamond Science and Technology, Pretoria, South Africa, 31August-4 September, (1998)
9. Prawer, S. "Thermal Stability and Relaxation in DLC: A Raman study of films with different sp³ fractions", 2st Specialist meeting on Amorphous Carbon, (SMAC), Crown Prince Hotel, Singapore, July 14-16, 1999.
10. *Prawer, S.," The Use and Abuse of Raman Spectroscopy in the Analysis of Diamond and Diamond-Like Carbon Films, Seventh International Conference on new Diamond Science and Technology, City University Hong Kong, 24-28 July, 2000.
11. *Prawer., S., Field Emission form Boron Doped Polycrystalline Diamond Films with Nanometer Resolution within grains. Taiwan Diamond 2000, July31-August 1, (2000)
12. *Prawer, S, MeV Ion Beam Doping of Diamond, Materials Research Society, Boston, USA, 2000
13. *Prawer, S., Diamond Quantum Dots Fabricated by Ion Implantation, International Conference on Materials for Advanced Technologies, Singapore, July 2-8, (2001)
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15. *Prawer S., Diamond Quantum Dots Fabricated by Ion Implantation, The Ninth International Conference on Advanced Materials, Tskuba, March 3-7, 2002
16. *Prawer, S., Keynote lecture: Insights into Nanocrystalline Diamond and Tetrahedral Amorphous Carbon, Progress in Advanced Materials, Khon Kean Thailand, Sept 16-18, 2002.
17. *Prawer, S. Diamond Quantum Dots: Fabrication and Applications, International Frontiers of Science and Technology, 2003 Sir mark Olipant Conference, Scaling Down to the Nano-Materials World, University of Melbourne, Dec 1-4, 2003.
18. *Prawer, S. and Greentree, A, 'On the role of diamond in a solid state quantum computer', Surface and Bulk Defects in CVD Diamond Films, Hasselt, Belgium, February 18-20, 2004.
19. *Prawer, S., Electronic Raman Scattering of Donor Atoms in Silicon: Applications to Quantum Computing, XIX International Conference on Raman Spectroscopy, Gold Coast, Australia, 8-13 August, 2004
20. *Prawer, S, 'Diamond for Quantum Communications, Spintronics and Quantum Computing, 3rd International Conference on Materials for Advanced Technologies (ICMAT 2005), Singapore, 3-8 July, 2005.
21. *Prawer, S., 'Diamond Based Quantum Information Processing, Nanosingapore, Jan 10-13, 2006.
22. *Prawer, S., 'Diamond Based Quantum Information Processing, Sir Mark Oliphant Conference on Quantum Nanoscience, Noosa, Australia, 21-26 Jan 2006.
23. *Prawer, S., 'Diamond Based Quantum Information Processing, International Conference on New Diamond Science and Technology and Applied Diamond Conference, Rayleigh, North Carolina, May 15-18, (2006)
24. *Prawer S., 'Quantum Mechanical Approaches to Information Processing', Keynote lecture, International Conference on Supercomputing, Cairns, June 28-July 1, (2006)

Other Overseas Presentations:

1. *Praver, S. - "Exploding Buckyballs", Naval Research Laboratories, Washington DC, USA, 29 June 1994.
2. *Praver, S. - "Ion Implantation into Diamond", Department of Physics, Heriott-Watt University, United Kingdom, 6 April 1995.
3. *Praver, S., "Ion Implantation into Diamond and Diamond Films", Solid State Division, Oak Ridge National Laboratory, Dec, 1995.

Australian Public Presentations:

1. *Praver, S. - "Structural Investigation of Ion Beam Modified Glassy Carbon", invited lecture at the Workshop on Analytical Electron Microscopy, Sydney University, May 1987.
2. Praver, S. - "Synthesis and Characterization of Plasma Deposited Diamond Thin Films", University of Melbourne, School of Physics Colloquium, July 1990.
3. Praver, S. - "Diamonds and Diamond Films", Institute of Metals and Materials Australasia, Melbourne, 12 March 1992.
4. Praver, S. - "Diamonds are Forever", Dean's Lecture Series, University of Melbourne, 25 August 1992
5. *Praver, S. - "The Wonderful World of Diamonds", Flinders University, November 1992.
6. *Praver, S. - "Diamonds and Diamond Films", University of New South Wales, April 1993.
7. Praver, S. - "The Wonderful World of Diamonds", University of Sydney, July 1993.
8. Praver, S. – "Diamonds are Forever", Presentation to the Friends of the Technion, May 9, 1993.
9. *Praver, S., "The Wonderful world of Carbon", Australian National University Summer School on the Physics of Novel Materials, Canberra, January, 1997.
10. Praver S, "Diamonds: A Physicist's best friend", Oration at the Physics Teachers Conference, 14 Feb., 1997.
11. Praver, S, "The Physics of Diamond", Latrobe University Physics Colloquium, 14 May, 1997.
12. *Praver, S. "AFM and STM studies of Diamond Surfaces", Australian-German Workshop on Surface and Electrochemical Analysis, Perth, 23 September, 1998
13. Praver S., "What is Success in Research", Keynote address, 1999 Computer Science and Software Engineering Symposium, Feb 10-12th 1999, Phillip Island
14. Praver, S., "Diamond, Blue Lasers and Quantum Computers, Department of Materials Science, Monash University, Nov 29, 1999.
15. Praver S., "Introduction to the Capabilities of Raman and AFM Techniques in Solving Materials Problems", Industrial Problem Solving Using Surface and Materials Analysis: Latrobe University, 27 Oct 1999.
16. Praver S., Introduction to the Capabilities of Raman and AFM Techniques in Solving Materials Problems", Microscopy and MicroAnalysis of Engineering Materials, Monash University, 14-17 Feb, 2000.
17. Praver S., Diamond and Blue Lasers, 14th National Congress of the Australian Institute of Physics, Adelaide, 10-15 December, (2000)
18. Praver, S., From Quantum Computers to Nanofabrication, Keynote address to Physics Teachers Conference, Monash University, Clayton, Feb 9, 2001.
19. Praver, S., What is success in research? Keynote lecture delivered at the opening of the Dental School Research Symposium, University of Melbourne, August 15, 2002
20. *Praver, S. The Silicon Quantum Computer: Whats all the fuss about? Physics in context, University of Melbourne, Nov 14, 2002
21. *Praver, S., *Quantum Computing: A new paradigm for computing*, International Institute of Future Science and Culture guest lecture, University of Melbourne, Nov 11, 2002.
22. *Praver, S. *From Diamond to Quantum Computers and back Again*, Dean's Centenary Lecture, Oct 15, 2004 University of Melbourne.
23. *Praver, S, *The Diamond Quantum Computer*, School of Physics Colloquium, Nov 8, 2006, University of Melbourne