**RESUME’ PROF. SATYA PRAKASH**

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**World Ranks: World Top %: 1.322422373; Citation Indicator C= 3.26448664: World Rank in Materials Science: 2353; Number of Papers: 412; Ref: Stanford Uni, PLoS Biol 18(10); e3000918**

#### Professor Satya Prakash Department of Physics

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***Name:* SATYA PRAKASH**

*Positions:* **1. Vice-Chancellor**

Jwaji University, Gwalior (2002-2005)

### UGC Emeritus Fellow

Department of Physics, Panjab University, Chandigarh (2009-2011)

### Dean, Faculty of Science

Panjab University, Chandigarh (1999-2001)

### Professor and Chairman

Department of Physics, Panjab University, Chandigarh (2001-2002)

### Visiting Professor

University of Duisburg, Germany (2007)

#### Working Experience:

Research, Teaching and Administrative duties were carried out in the following Institutions:

### In India:

1. University of Allahabad, Allahabad
2. University of Roorkee, Roorkee
3. Punjabi University, Patiala
4. Panjab University, Chandigarh
5. Jiwaji University, Gwalior

### Abroad:

1. Faculty of Science, University of Paris XI, Orsay, France
2. Faculty of Science, University of Paris VI, Paris, France
3. Laboratoire de Physique des Solides, Ecole Superieure de Physique et Chimie Industrial, Paris, France.
4. Institute of Advanced Studies, Australian National University Canberra, Australia
5. School of Low Temperature Physics, Gerhard-Mercator University, Duisburg, Germany

#### PERSONAL

* Born on May 30, 1941 in village Barauli , Mainpuri (Uttar Pradesh)
* High School with distinctions in Maths and Science and Intermediate with distinctions

in Physics, Chemistry and Maths. (UP Board)

* B.Sc., Agra University with distinctions in Maths and Statistics, 1962.
* M.Sc., Allahabad University with specialization in X-rays, 1964.
* D.Phil., Allahabad University, 1970.
* Merit Scholarships IX to B.Sc. (UP Board), M.Sc. (Allahabad University)
* Awarded Junior, Senior and Post-Doc Fellowships (CSIR, DAE).
* Married, blessed with a son and a daughter, very well settled.

#### JOBS

* **Vice-Chancellor, Jiwaji University, Gwalior, (2002-05)**

(As **Vice Chancellor of Jiwaji University, Gwalior (M.P.)** contributed to the multidimensional growth of the university in the terrain of Chambal Ghati. The then **Prime Minister of India, Shri Atal Bihari Vajpayee remarked that “you have put the pen in the fingers of young hands that were ready to hold guns”. The then President of India, Dr. A.P.J. Abdul Kalam remarked the university as “great institute”.**

* Chairman, Department of Physics, Panjab University, Chandigarh, ( 2001 - 2002)

### (Contributed for better laboratory teaching and infrastructure for the students)

* **Dean, Faculty of Science, Panjab University, Chandigarh, ( 1999 -2001)**

**(Strengthened research dynamics in the university)**

* Worked for short durations in Research Institutes and Universities in USA, UK, France, Germany, Italy, Australia, Singapore, and Thailand.
* Visiting Professor, University of Duisburg, Germany, 1999, 2007
* Visiting Professor / Visiting Scientist, ESPCI and Université Paris VI for three months (1991, 1992, 1993, 1994 and 1996).
* Professor of Theoretical Solid State Physics, Panjab University, Chandigarh, (1987-2003)
* Research Fellow, Australian National University, Canberra (1984-86)
* Visiting Professor, Université Paris XI, Orsay (1981, 1982).
* Reader in Physics, Panjab University, Chandigarh, (1979-87)
* Chercheur Associe, CNRS, France (1976-78).
* Awarded Burse Joliot Curie, Orsay (France), 1975.
* Lecturer in Physics, Panjab University, Chandigarh, (1972-79)
* Lecturer in Physics, Punjabi University Patiala, 1971.

#### RESEARCH

Significant contributions in **PHYSICS OF MATERIALS are in the subjects of lattice dynamics of simple and transition metals, magnetic excitations in metals, electric and strain field gradients in dilute alloys, hydrogen diffusion in metals, cuprate superconductors,** **Nano Phase materials and Semiconductors.**

|  |  |
| --- | --- |
| Ph.D. theses: | 16 |
| Research Projects: | 11 |
| Research Publications: | 222 |

|  |  |  |
| --- | --- | --- |
| **Articles**  Reviews: | **No.**  5 | **Printed Pages**  172 |
| **Research Papers:** |  |  |
| Phys. Rev. B: | 36 | 340 |
| J. Phys. C and F: | 11 | 140 |
| Physica: | 11 | 111 |
| Phys. Letters A: | 8 | 25 |
| Nuovo Cimento: | 4 | 68 |
| Phys. Status Solidi: | 7 | 65 |
| Cand. J. Phys.: | 3 | 40 |
| Pramana: | 12 | 124 |
| Hyperfine Int, Cryst.. Lattice Defects, J. Non-Cryst. |  |  |
| Solids, Carbon, Int. J. Mod. Phys. J. Solid State |  |  |
| Chem., J. Mag. Mag. Mater., Spectrochimica Acta Part A, Appl. Phys. A, Solid State Comm, Phase Transition, J. Mater. Res. and other Int. Journals. | 50 | 431 |
|  |  |  |
|  |  |  |
| Conf. Papers: | 62 | 125 |
| Science Education: | 13 | 65 |
| **Total:** | **222** | **1706** |

#### Books Authored:

1. **Dynamics of Transition Metals and Alloys**

(Nova Science Publishers Inc. New York, 1998)

### (A scholarly contribution to the physics of transition metals)

1. **Vision for Science Education**

(Allied Publishers, New Delhi.2014)

### (A deep concern about science teaching in the country and a vision for future generation)

1. **Advances in Statistical Physics of Solids and Liquids**

(John Wiley, New York, 1990)

### Disordered Materials

(Narosa Pub., New Delhi, 2003)

#### Book in Preparation:

Hydrogen in Metals: A Quantum Impurity

#### OTHER ACADEMIC CONTRIBUTIONS:

* Developed Solid State Physics group at Panjab University, Chandigarh.
* Organized International Advanced School in Statistical Physics.
* Organized TPSC Conference and Refresher Courses.
* Worked on National Committee for NET.
* Core Committee Member of International and National Conferences in Panjab univerity.

An expert in selection committees.

* Vice President, Indian Physics Association (IPA) (1997-99).
* Vice President, Indian Association of Physics Teachers (2001-07).
* Chairman of NAAC Committees for assessment and accreditation of Universities and Colleges.
* Organized 46th Department of Atomic Energy Solid State Physics Symposium 2003 in Jiwaji University, Gwalior, December 26-30, 2003.
* Nominated by UGC for General Council of NAAC for a period of three years from August 2004.

### President, Indian Association of Physics Teachers, (2010-13)

***ACADEMIC DISTINCTIONS***

* **World Ranks: World Top %: 1.322422373; Citation Indicator C= 3.26448664: World Rank in Materials Science: 2353; Number of Papers: 412; Ref: Stanford Uni, PLoS Biol 18(10); e3000918**
* **I**nvited to submit the proposals for "***THE NOBLE PRIZE OF PHYSICS 1997***".
* Member, National Academy of Sciences, India.
* Referee of Phys. Rev. Letters, Phys. Rev. and Pramana.
* Distinguished Leadership Award, American Biographical Institution.
* *The Men of Achievement* Award, Int. Biographical Center, London.
* Five Hundred Leaders of Influence Award, Int. Publications.
* Among 2000 Outstanding Intellectuals of 20th Century.
* Among 2000 Outstanding Scientists of 20th Century.
* The 20th Century Award of Achievements.

Biography in Marque's Who's Who 2018

* Research Board of Advisors, American Biographical Institution.
* **'Higher Education and Development Award'** by Higher Education and Development Summit (HEADS) Committee, New Delhi for outstanding contribution in the area of higher education. (April 16, 2004)
* **‘Lifetime Achievement Award’** by ITDC, New Delhi on the occasion of International Trade Summit held on September 15, 2004.
* Nominated “**Member of Kendriya Hindi Samiti”** by Rashtrbhasha Vibhag, Govt. of India for a period of 2004 – 2008 under Hon'ble Prime Minister of India.
* **UGC Emeritus Fellow,** Physics Department, Panjab University, Chandigarh
* **Chancellor Nominee,** ForSelection Committees Punjab State Universities

## Membership of Professional Bodies

* 1. The National Academy of Sciences, India.
  2. Indian Physics Association.
  3. Indian Association of Physics Teachers.
  4. Nuclear Science Centre Council, New Delhi (2003-05).
  5. Executive Committee of Indian Red Cross Society, M.P. State Branch (2003-05).
  6. Governing Body of Cancer Hospital and Research Institute, Gwalior (2003-05).
  7. Governing Body of Atal Bihari Vajpayee Indian Institute of Technology & Management, Gwalior (2003-05).
  8. Exemption Committee of University Grants Commission (2003-05).
  9. National Academic Planning Committee of the XXVIII Indian Social Science Congress (2003-05).
  10. Steering Committee of M.P. SLET-2004.

**SIGNIFICANT CONTRIBUTIONS IN MATERIALS SCIENCE**

1. **Lattice Dynamics of Simple and Transition Metals**

The ab initio theories of dielectric screening and lattice dynamics of simple and transition metals are formulated. The non interacting band model for dielectric screening in transition metals is proposed and generalized screened breathing shell model is achieved. The crossing of longitudinal and transverse modes and phonon anomalies are correlated to band structure effects. The experimental results of phonon spectra of 23 simple and transition metals Li, Na, K, Rb, Cs, Be, Mg, Zn, Al, Cu, Ag, Au, para /ferro Ni, Pd, Pt, Cr, Sc, V, Zr, Tl, Tb, Ho are explained.

The monograph **"*Dynamics of Transition Metals and Alloys*"** is very specific contribution to physics of transition metal materials. It consists of Born-von-Karman Theory, Experimental Survey, Microscopic Theories and Models of Lattice Dynamics, Phonon Anomalies, Generalized Susceptibility and Lattice Dynamics of Metallic Alloys. The available neutron scattering data of more than 200 transition metal materials including compounds, carbides, hydrides, nitrides and disordered alloys are reviewed with more than 15 tables, 90 figures, and 700 references.

1. **Magnetic Excitations in Metals**

Non interacting band model and pseudo potential theories for temperature dependent static and dynamical spin and orbital susceptibilities are formulated. The anomalies in magnetic susceptibility are due to quasi localized d- electrons. The available experimental data for Al, Cu, Ag, Au, para / ferro Ni, V, Pd and Pt are explained.

1. **Electric and Strain Field Gradients in Dilute Alloys**

The first principle theories with consistent conceptual enhancement are formulated for transition metalimpurities induced charge perturbation**,** residual resistivity, capture radii,electric and strain field gradients and electronic structure.Dielectric matrix in linear combination of atomic orbital representation is inverted to obtain anisotropic strain field. Local field effects are found significant in transition metal alloys. The existing experimental results for more than 200 following dilute non magnetic and magnetic alloys are explained:

**Residual resistivity; AlX**(X=1at% Cu,Ag, Mg, Zn,Cd,Ga, In, Ge, Si, Sn)**; CuX** (x=1at% Ag, Au,Be, Mg, Zn, Li, Na, K, Rb, Cs, Ca, Ba**,** Cd, Hg);  **AgX** ( X=1at% Cu, Au, Mg, Zn, Li, Na, K, Rb, Cs, Ca, Ba**,** Cd, Hg,) and **AuX** (X=1at% Cu, Ag, Be, Mg, Zn, Li, Na, K, Rb, Cs, Ca, Ba**,** Cd, Hg)**.** **Capture radii;** AlX (X=1at% Cu, Ag, Mg, Zn, Si, Ga) and CuX(X=1at% Ag, Au, Al, Be, Mg, Zn, Ni, Pd, Pt, Sc, Mn, Co, Sb, Ge, Si, P, Ga , As, Cd, In, Sn). **Strain and Electric Field gradients;** **AlX** (X=1at% Be, Mg, Zn, Cu, Ag, Au, Ga, Ge, Bi, Sn, Cd, Si, In, Vacancy, V, Sc, Ti, Cr, Mn, Fe); **CuX** (X=1at % Mg, Zn, Ga, Ge, Ag, Au, Be, Bi, Si, Cd, In, Sn, Sb, µ+, Vacancy Ni, Pd, Pt, Co ); **AgX** (X=1at% Cd, In, Sn, Sb); **AuX**(X= 1at%Sn, Sb);  **FeX**(X=1at% Cu, Ni, Pt, Cr, Mn, Nb, Mb,W): **VX**(X=1at% Fe, Ti, Cr, Mn, Nb, Mb,Ta, W); **CrX**(X=1at% V, Mn,Fe,Zr, Nb, Mb,Ta, W); **NbX**(X=1at% V, Mn, Fe, Cr, Zr, Mb,Ta, W); **MbX**(X=1at% V, Cr, Mn, Fe, Zr, Nb, Ta, W); **NiX**(X=1at% Cu, Au, Ni, Pd, Pt, Fe, Co, Nb, Mb); **PdX**(X=1at% Cu, Au, Ni, Pt, Fe, Co, Nb, Mb). **Electronic Structure;** **AlX**(X=1at% Cu, Ag, Li, Mg, Zn, Be, Cd, Ga, In, Ge, Si, Sn, V, Cr, Ti); **CuX** (X=1at% Ag, Au, Zn, Cd, In, Ga) Al-H, Mg-H,Cu-H, Zr-H, CuNi, CuCo, AgNi.

1. **Hydrogen Diffusion in Metals and Cuprates**

Time evolution of impurity state wave packet is used to obtain diffusion constant using dispersive optical and acoustic phonons. Hydrogen is most stable at the octahedral site in fcc and hcp lattices, at tetrahedral site in bcc lattice and at off- symmetric interstitial site in CuO plane in the protonic state.The experimental data on hydrogen isotopes diffusion in 23 materials Na, Mg, Al, Cu, Ag, Au, Ni, Pd, Pt, Nb, V, Ta, Mo, W, Cr, Zr , Lu, YBa2Cu3O7-Y, Bi2Sr2Ca1Cu2O8+yHx, La2-y SryCu1O4Hx, Eu1.2Ba1.8,Cu3O7Hx and Y Ba2Cu3O7Hx are explained.

1. **Nano Phase Materials and Semiconductors**

Ab initio Molecular Dynamics in embedded atom model potential is used to explain the experimental results of atomic structure and phonon spectra of Cu, Ag, Au, Ni, Fe, Pt, Ni3 Fe, Si, TiO2 nano materials. The surface modes dominate, pressure variation at the surface is critical and capillary pressure is found in the core region.

Spin polarized density functional tight binding theory is used to explain, structural, vibrational, electronic, optical and magnetic properties of following 36 semiconducting materials: α- SiH, C60-nBn, C60-nNn, C70-nBn, C70-nNn (n=0,1,2), **M5@C60** (M= Cr, Mn, Fe, Co, Ni), **M5@C70** (M= Cr, Mn, Fe, Co, Ni), CrC6, MnC6, FeC6, Melatonon, Glutathione, ZnSe, Zn1-xVxSe, Zn1-xFexSe, Zn1-xCoxSe, As2S3, As2-xAgxS3, Ag2S3, As2-xCuxS3, As2Se3, As2Te3, As2-xAgxSe3, Se100-xXx (X=Ge, In,Te), Se100-x-yTexGey.

The experimental results of atomic structure and vibrational properties of following 50 nano materials are reviewed: (**Elements**) Al, Mg, Zn, Cu, Ag, Au, Pb , Ni, Pd, Fe, Mb, W, Cr, Ti, Si, Zr, Se, Lu , (**Oxides**) NiO, MgO, TiO2, Er2O3, Al2O3, SiO2, Bi2O3, Cr2O3, Fe2O3, GeO2, V2O3, RuO2

(**Mixed Oxides**) Zr2O3-Y2O3, Zr2O3-Y2O3-MgO, Zr2O-MgO, ZrO2-Al2O3, BaFe12O19, BaTiO3,

(**Compounds**) Cu9Mn9, Al52Ti48, TiN , SiN4, SiC, ZrB2, FeSi2, B4C,TiB2, CdSxSe1-x, Fe-S, Au-Ag, Ag-Fe, Ni3Fe.

1. **Science Education**

A deep concern about science education and a vision for future generation is presented in the volume “Vision **for Science Education”** (Allied Publishers,New Delhi,2014)

**LIST OF PUBLICATIONS (*Professor Satya Prakash*)**

# Books Authored

### Dynamics of Transition Metals and Alloys

(Nova Science Publishers Inc. New York, 1998).

### Vision for Science Education (Allied Publishers, New Delhi,. 2014)

1. **Advances in Statistical Physics of Solids and Liquids**

(John Wiley, New York, Wiley Eastern, New Delhi, 1990)

1. **Disordered Materials** (Narosa Publications, New Delhi, 2003)
2. **Hydrogen in Metals: A Quantum Impurity** (in preparation)

# Review Papers

1. Models and microscopic theories of lattice dynamics of metals, in "Current Trends in Lattice Dynamics" Ed. K.R. Rao, 1979, pp. 197- 293, 400 references (Satya Prakash).
2. Electric field gradients in cubic alloys, Hyperfine Interactions, 24, 491-519 (1985) (S. Prakash)
3. Atomic diffusion in solids, in "Advances in Statistical Physics of Solids and Liquids" (Eds. S. Prakash and K.N. Pathak, John Wiley and Wiley Eastern Ltd. 1990) pp. 55-72 (S. Prakash).
4. Structure and Vibrational Properties of Nanoparticles in "Disordered Materials" (Narosa Pub., New Delhi, 2002) p133- 162(S. Prakash, Ranber Singh and P. Entel).
5. Quantum Theory of Diffusion (in preparation) (S. Prakash).

# Original Research Papers

1. **Lattice Dynamics of Simple Metals**
2. Force constants of sodium, Phys. Rev. 140, A1754-A1758 (1965) (Satya Prakash and S.K. Joshi)
3. Lattice dynamics of Aluminum, Physica 34, 155-160 (1967), (Satya Prakash and S.K. Joshi)
4. Comparison of dielectric screening methods used in phonon frequency calculations of normal metals, Phys. Rev. 185, 913-923 (1969) (Satya Prakash and S.K. Joshi)
5. Phonon frequencies of alkali metals, Phys. Rev. 187, 808-820 (1969), (Satya Prakash and S.K. Joshi)
6. Phonon frequencies of hexagonal meals, Be, Mg and Zn, Phys. Rev. B1, 1468-1478 (1970), (Satya Prakash and S.K. Joshi)
7. Intercomparison of dielectric screening methods used in phonon frequency calculations of normal metals, Proc. Nat. Inst. of Science 35A, 852-857 (1969), (Satya Prakash and S.K. Joshi)
8. The determination of the crystal potential for a calculation of phonon frequencies of normal metals, Phys. Letters, 30A, 123-124 (1969) (Satya Prakash and S.K. Joshi).
9. Phonon dispersion in alkali metals I, Physica 50, 10-14 (1970) (S.N. Singh and S. Prakash)
10. Phonon frequencies of alkali metals II, Physica 58, 71-76 (1972) (S.N. Singh and S. Prakash)
11. Grüneisen parameter of Aluminum Physica 47, 452-457 (1970), (Satya Prakash and S.K. Joshi)

# Dielectric Screening and Lattice Dynamics of

# Transition Metals

1. Non-interacting band model for dielectric screening in transition metals-Application to paramagnetic nickel, Phys. Rev. B2, 915-927 (1970) (Satya Prakash and S.K. Joshi).
2. Lattice dynamics of transition metals - Application to paramagnetic nickel, Phys. Rev. B4, 1770-1778 (1971), (Satya Prakash and S.K. Joshi).
3. Lattice dynamics of noble metals - Application to copper, Phys. Rev. B5, 2880-2887 (1972), (Satya Prakash and S.K. Joshi).
4. Phonon frequencies and cohesive energies of Copper, Silver and Gold, Phys. Rev. B8, 5532-5544 (1973), (Natthi Singh and Satya Prakash).
5. Phonon frequencies of Gold. Phys. Rev. B10, 2652-2653 (1974), (Natthi Singh and Satya Prakash).
6. Non-interacting spin band model for dielectric screening and local field corrections in ferromagnetic nickel, Phys. Rev. B12, 1076-1083 (1975) (Natthi Singh, Joginder Singh and Satya Prakash).
7. Lattice dynamics of nickel, Phys. Rev. B12, 5415-5422 (1975), (Natthi Singh, Joginder Singh and Satya Prakash).
8. Non-interacting band model for dielectric screening and local field corrections in bcc transition metals: Application to paramagnetic Cr, Phys. Rev. B12, 3159-3165 (1975) (Joginder Singh, Natthi Singh and Satya Prakash).
9. Phonon frequencies of noble metals, Phys. Rev., B12, 1600-1602 (1975) (Natthi Singh and Satya Prakash).
10. Phonon frequencies of paramagnetic Chromium, Phys. Rev. B12, 3166-3173 (1975), (Joginder Singh, Natthi Singh and Satya Prakash).
11. Phonon dispersion in scandium and yttrium, Phys. Letters, 53A, 164-166 (1975), (J. Singh and S. Prakash).
12. Form factor of nickel, Phys. Letters, 58A, 59-60 (1976) (J. Singh, N. Singh and S. Prakash).
13. Form factors of copper and nickel, Phys. Letters, 37A, 177-178 (1977) (S. Prakash).
14. Dielectric screening and lattice dynamics of hcp transition metals, Sc and Y, Nuovo Cimento, 37B, 131-154 (1977) (J. Singh and S. Prakash).
15. Phonon dispersion in hcp metals, Physica 90B, 223-236 (1977) (J. Singh, R. Singh and S. Prakash).
16. Kohn anomalies and phonon dispersion in transition metals, in "Lattice Dynamics" (Ed. M. Balkanski, Flammarion Sciences, Paris, 1977) p30-33 (S. Prakash).
17. Dielectric screening and phonon frequencies of Paladium, Platinum and Vanadium, Phys. Rev. B18, 2954-2960 (1979) (Joginder Singh, Natthi Singh and Satya Prakash).
18. Dielectric matrix using non-local model potential approach, J. Phys. F11, 2409-2416 (1981) (Joginder Singh and Satya Prakash).

# Magnetic Excitations in Metals

1. A model calculation of susceptibility function of paramagnetic nickel, Physica, 78, 273-290 (1974), (Satya Prakash and Natthi Singh).
2. Model calculation of dynamical spin susceptibility of paramagnetic nickel, Phys. Rev. B15, 5412-5420 (1977) (Ramjit Singh and Satya Prakash).
3. Dynamical spin susceptibility of ferromagnetic nickel, Phys. Rev. B16, 4012-4019 (1977) (Ramjit Singh, Joginder Singh and Satya Prakash).
4. Model potential theory of dynamical susceptibility of metals: Application to Vanadium, Copper and Aluminium, J. Phys. F10, 1231- 1248 (1980) (Ramjit Singh, Satya Prakash and Joginder Singh).
5. Magnetic susceptibility of noble metals, J. Phys. F10, 1249-1252 (1980) (Ramjit Singh, S. Prakash and Joginder Singh).
6. Dynamical spin susceptibility of 3d, 4d and 5d transition metals, Phys. Stat. Solidi (b) 103, K65-K69 (1981) (Ramjit Singh, S. Prakash and J. Singh).
7. Temperature dependence of dynamical spin susceptibility of transition metals, Phys. Rev. B23, 2357-2366 (1981) (Ramjit Singh,

S. Prakash and Joginder Singh).

# IV .Electric and Strain Field Gradients in Dilute

# Alloys

# Residual resistivity of noble metals, Phys. Stat. Solidi (b) 79, 787- 794 (1977) (N. Singh, J. Singh and S. Prakash).

1. Interatomic potential for copper, Phys. Rev. B17, 1700-1706 (1978), (Satya Prakash and P. Lucasson).
2. Theory of charge perturbation due to impurities in transition metals, J. Phys. F8, 2497-2509 (1978) (S. Prakash).
3. Capture radii of impurities in Aluminium, Crystal Lattice Defects, 8, 111-112 (1979) (S. Prakash and P. Lucasson).
4. Size effect, valency factor and point defect interactions in dilute alloys, Phys. Stat. Solidi (b) 91, 339-347 (1979), (S. Prakash and P. Lucasson).
5. Point defects-impurity interactions in copper, J. Phys. F11, 2515- 2524 (1981) (S. Prakash and P. Lucasson).
6. Pseudo Green’s function theory for dilute alloys of d-band metals, Nuovo Cimento, 1D, 235-256 (1982) (J. Singh, S.D. Raj and S. Prakash).
7. Electric field gradient in dilute alloys of copper, Phys. Rev. B26, 736- 742 (1982) (S.D. Raj, J. Singh and S. Prakash).
8. Electric field gradient in copper alloys, J. Phys. F12, 1941-1957 (1982) (S.D. Raj, J. Singh and S. Prakash).
9. Electric field gradient in dilute alloys of Aluminium, Phys. Rev. B27, 2241-2247 (1983) (S.D. Raj, J. Singh and S. Prakash).
10. Electronic structure of impurities in dilute alloys of Al, Phys. Stat. Solidi (b) 119, 381-389 (1983) (S. Mahajan and S. Prakash).
11. EFG in dilute transitional alloys of Cu and A1, Cand. J. Phys. 61, 1064-1072 (1983) (B. Pal, S.D. Raj, S. Prakash and J. Singh).
12. Electronic structure of hydrogen and muonium in simple metals, Nuovo Cimento 2D 883-897 (1983) (S. Mahajan and S. Prakash).
13. Electric field gradients in non-magnetic dilute alloys of Aluminium and Copper, Phys. Rev. B30, 3191-3202 (1984) (B. Pal, S. Mahajan,

S.D. Raj, J. Singh and S. Prakash).

1. Electronic structure of CuNi, CuCo, and AgNi alloys, Nuovo Cimento 4D, 469-475 (1984) (J. Singh, S.D. Raj and S. Prakash).
2. Electric field gradients in dilute transitional alloys of copper, Phys. Letters 107A, 129-132 (1985) (J. Singh, S.K. Rattan and S. Prakash).
3. Electric field gradient for non-transitional dilute alloys of Aluminium, Cand. J. Phys. 63, 498-506 (1985) (S.D. Raj, S. Prakash and J. Singh).
4. Electric field gradient in dilute bcc alloys: Application to Vanadium alloys, Phys. Stat. Solidi (b) 129, 301-312 (1985) (B. Pal, J. Singh,

S.D. Raj and S. Prakash).

1. Electric field gradient in non-transitional dilute alloys of Aluminium, Physica 132B, 61-66 (1985) (S. Mahajan, B. Pal and S. Prakash).
2. Electric field gradient for muonium and monovacancies in Cu and Al, Physica 133B, 210-221 (1985) (B. Pal, S. Mahajan and S. Prakash).
3. Electric field gradient for interstitial positive muons in fcc metals, An abinitio calculation of size effect, Phys. Letters 109A, 397-400 (1985) (B. Pal, S. Mahajan and S. Prakash).
4. Electric field gradient in dilute vanadium alloys. Phys. Letters 114A, 279-283 (1986) (S.K. Rattan, S. Prakash and J. Singh).
5. Electric field gradient for simple metal impurities in Ag and Au, Physica 141B, 203-212 (1986) (B. Pal, S.K. Rattan, J. Singh and S. Prakash).
6. Electronic structure of interstitial hydrogen in Zr, Pramana- J. Phys. 26, 143-150 (1986) (N. Singh, S.P. Singh, S. Mahajan, V.K. Jindal and

S. Prakash).

1. Calculation of electric field gradient in transitional and non- transitional dilute cubic alloys, Physica 144B, 368-375 (1987) (J. Singh, S.K. Rattan, B. Pal and S. Prakash).
2. Electric field gradient in transitional dilute alloys, Hyperfine Interactions, 35, 685-689 (1987) (J. Singh, S.K. Rattan and S. Prakash).
3. Electronic structure of dilute cubic transitional alloys, in "Advances in Statistical Physics of Solids and Liquids" (Eds. S. Prakash and K.N. Pathak, John Wiley Ltd., 1990) pp 230-243 (J. Singh, S.K. Rattan and

S. Prakash).

1. Local field effects in the electric field gradients of dilute transition metal alloys, Phys. Rev. B38, 10440-10446 (1988) (J. Singh, S.K. Rattan and S. Prakash).
2. Strain field due to point defects in metals, Phys. Rev. B47, 599-606 (1993), (S.K. Rattan, P. Singh, S. Prakash and J. Singh).
3. Theory of electric field gradient in dilute alloys, Phys. Rev. B48, 6927-6936, (1993), (S. Prakash, S.K. Rattan and J. Singh).
4. Electronic structure of hydrogen and munioum in Al, Mg and Cu, Pramana, 41, 239-255 (1993) (Pawan Singh and S.Prakash)
5. Strain field due to substitutional transition metal impurities in bcc metals: Application to vanadium alloys, Phys. Rev. B49, 932-943 (1994), (J. Singh, Pawan Singh, S.K. Rattan and S. Prakash)
6. Electronic structure of impurities in dilute alloys of Cu, Phys. Rev. B49,2335-2343(1994) (P. Singh, S.K. Rattan, J. Singh & S. Prakash).
7. Electronic structure of non-magnetic impurities in dilute alloys of Al, Pramana 42, 405-420 (1994) (P. Singh and S. Prakash).
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