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| **Name: Dr. G. D. Varma**<br>**Date of Birth:01-04-1961** | **Designation: Assistant Professor in Physics**  |
| **Qualification: M.Sc., Ph.D.** | |

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**Areas of Interest: Experimental Condensed Matter Physics, Material Science**

**Research Fields: Synthesis/growth and characterization of high $T_c$ superconducting materials, colossal magnetoresistive materials and carbon nanotubes.**

**Foreign Visits: Academic / Scientific visits : ICTP, Trieste, Italy**

**Sponsored Research Projects: (Title/Sponsoring Agency/year-duration)**

**Conferences and Workshops Organized:**

## Papers in International and National Journals:

1. K. K. Verma, **G. D. Verma**, R. S. Tiwari and O. N. Srivastava; Jpn. J. Appl. Phys. 29 (1990) L880.
   Preparation of Tl-Ba-Ca-Cu-O high temperature superconducting thin film by flash evaporation.
1. B. Das, K. Ramakrishna, **G. D. Verma**, R. S. Tiwari and O. N. Srivastava; Bull. Mat. Sci. 14 ( 1991 ) 585.
   Electron microscopic observation of Bi and Tl bearing cuprate high temperature superconductors.
2. **G. D. Verma**, K. Ramakrishna and O. N. Srivastava; Supercond. Sci. and Technol. 4 (1992 ) 548.
   Electron microscopic studies of structural characteristics of Tl(Bi)-Sr-Ca-Cu-O high temperature superconductor.
3. **G. D. Verma**, K. Ramakrishna and O. N. Srivastava; Indian J. Chem. 31 ( 1992 ) 495.
   On the synthesis and electron microscopic characterisation of Tl(Bi)-Sr-Ca-Cu-O.
4. **G. D. Verma**, K. Ramakrishna and O. N. Srivastava; Physica C 202 ( 1992 ) 327.
   On the electron microscopic studies of structural characteristics of Tl(Bi,Pb)-Sr-Ca-

Cu-O high temperature superconductor.

5. **G. D. Verma** and O. N. Srivastava; C. M. M. C. ( Nova Sci. Publ., New York, Ed. by A. V. Narlikar ) ( 1994 ).
   Investigation on $Tl_2Ba_2CuO_{6+\delta}$ and $Tl_{0.5}Pb_{0.5}Sr_2Ca_{1-x}Y_xCu_2O_7$ in relation to optimisation of transition temperature and structural – microstructural characteristics.
6. **G. D. Verma**, A. K. Srivastava, K. Ramakrishna, A. K. Singh and O. N. Srivastava; "Studies of High Temperature Superconductors" ( Nova Sci. Publ., Ed. A. V. Narlikar ) 15 ( 1995 ) 237 **( Review Article ) .**
   Transmission electron microscopic investigations of microstructural characteristics of high temperature superconductors.
7. Anjana Asthana, **G. D. Verma**, A. K. Singh and O. N. Srivastava; C. M. M. C. (1995 ).
   The formation, characterisation of Tl-Ba-Ca-Cu-O(Ag) HTSC tapes through doctor blade process and influence of silver on transition temperature and critical current density.
9. A. K. Pandey**, G. D. Verma** and O. N. Srivastava; Mod. Phys. Lett. 10 (1996 )1175.
   Investigation on synthesis and Characterisation of $Hg_{1-x}Tl_xBa_2Ca_2Cu_3O_{8+\delta}$ with $0.2<x<0.8$.
10. Asthana, **G. D. Verma** and O. N. Srivastava; Journ. Phys. D: Appl. Phys. 30 (1997) 2069.
    Synthesis , characterisation and the Ag induced effect on the microstructure of Tl-Ba-Ca-Cu- O-$Ag_y$ tapes.
11. A. K. Srivastava, **G. D. Verma** and O. N. Srivastava; Phase Transitions 64 (1998 ) 127.
    On the structural transition of Hg-Ba-Ca-Cu-O HTSC phase to long period polytypic structure as a result of Tl, Pb doping on Hg sites.
12. **G. D. Verma**, A. K. Srivastava and O. N. Srivastava; ASMCCD'96 Proceeding 114.
    On the synthesis and occurrence of curious long period polytype like structure of Hg(Tl,Pb)-Ba-Ca-Cu-O high temperature superconductor.
13. A. K. Pandey, **G. D. Verma** and O. N. Srivastava; Physica C 306 ( 1998 ) 47.
    Investigation on Tl – doped Hg-Ba-Ca-Cu-O high temperature superconductors in regard to hole doping and microstructural characteristics.
14. **G. D. Verma**, A. K. Srivastava and O. N. Srivastava; Indian J. Phys. 76A(1) (2002) 89.
    Synthesis and structural characteristics of Hg-Ba-Ca-Cu-O high temperature superconductor.
15. B. Das, **G. D. Verma** and O. N. Srivastava; Indian J. Phys.76A(1) (2002) 79.
    Synthesis and microstructural characteristics of Tl – based high temperature superconducting tapes.
16. Rajiv Giri, **G. D. Verma**, R. S. Tiwari and O. N. Srivastava; Crystal Research and Technology 38 (2003) 760.
    Influence of simultaneous doping of Tl and Bi on microstructure and critical current density of $HgBa_2Ca_2Cu_3O_{8+\delta}$ .

17. Rajiv Giri, **G. D. Verma**, S. K. Malic, D. Kundaliya, R. S. Tiwari and O. N. Srivastava; Journal of Alloys and Compounds, in press (2003).
Investigations on the synthesis and microstructural characteristics of Hg(Bi)-Ba-Ca-Cu-O HTSC in relation to critical current density.

**Conference/Symposium Papers:**

1. B. Das, **G. D. Verma** and O. N. Srivastava; National Workshop on high temperature
superconductivity, Dec. 14 – 15, 1988, Deptt. of Physics, B. H. U , Varanasi.
Investigations on high Tc superconductors ( $Bi,Tl,Pb)_m(Sr,Ba)_2Ca_{n-1}Cu_nO_{2n+m+2}$ (m=1,2 & n=1,2,3).
2. B. Das, K. Ramakrishna, **G. D. Verma**, R. S. Tiwari and O. N. Srivastava; Bull. Mat. Sci. 14 ( 1991 ) 585.
Electron microscopic observation of Bi and Tl bearing cuprate high temperature superconductors.
3. **G. D. Verma**, K. Ramakrishna and O. N. Srivastava; DAE SSP, Dec. 21 – 24, 1991, B. H. U., Varanasi.
Synthesis and electron microscopic characterisation of Tl(Bi)-Sr-Ca-Cu-O and Tl(Bi,Pb)-Sr-Ca-Cu-O high temperature superconductors.
4. **G. D. Verma**, K. Ramakrishna and O. N. Srivastava; XXIII National seminar on Crystallography, March 23 – 25, 1992, Deptt. of Physics, M. R. E. College, Jaipur.
On the synthesis and electron microscopic investigations of the Tl(Bi,Pb)-Sr-Ca-Cu-O high temperature superconductor.
5. **G. D. Verma**, A. K. Srivastava, A. K. Pandey and O. N. Srivastava; XXVII National seminar on crystallography, Jan. 31 – Feb. 2, 1996.
On the observation of curious long period polytype like structure in Hg(Tl,Pb)-Ba-Ca-Cu-O high temperature superconductor.
6. **G. D. Verma**, A. K. Srivastava and O. N. Srivastava; International symposium on advances in superconductivity: New materials, Critical currents & devices, Sept. 17 – 20, 1996, T.I.F.R.,Mumbai.
On the synthesis and occurrence of curious long period polytype like structure of Hg(Tl,Pb)- Ba-Ca-Cu-O high temperature superconductor.
7. **G. D. Verma** and O. N. Srivastava; XXX National seminar on Crystallography, June 28 – 30, 2000, Deptt. of Physics, S. V. University, Tirupati.
Synthesis and structural characteristics of Tl-based high temperature superconductors.
8. **G. D. Verma**, A. K. Srivastava and O. N. Srivastava; CM Day – 2000, 29 – 31 August, 2000, Deptt. of Physics, Guru Ghasidas University, Bilaspur.
Synthesis and structural characteristics of Hg-Ba-Ca-Cu-O high temperature superconductor.
9. B. Das, **G. D. Verma** and O. N. Srivastava; CM Day – 2000, 29 – 31 August, 2000, Deptt. of Physics, Guru Ghasidas University, Bilaspur, India.
Synthesis and microstructural characteristics of Tl – based high temperature superconducting tapes.
10. **G. D. Verma**, R. K. Singh and O. N. Srivastava; 43$^{rd}$ DAE-SSPS 27–31 December 2000, Deptt. of Physics, Guru Ghasidas University, Bilaspur, India.

Investigations on synthesis and structural characteristics of Hg (Bi)-Ba-Ca-Cu-O high temperature superconductor.

11. **G. D. Verma** and O. N. Srivastava; 45th DAE-SSPS, 26-30 December,2002, Deptt of Physics, Panjab University, Chandigarh, India.
    On the microstructural characteristics of Tl(Bi,Pb)-Sr-Ca-Cu-O high temperature superconductor.
12. G. D. Varma and O. N. Srivastava; 46th SAE-SSPS, 26-30 December, 2003, Giwaji University, Gwalior, India.
    Investigations on optimization of carrier density and micro-structural features of Tl-based high temperature cuprate superconductors.

**Research Guidance : (Scholar's name/Thesis Title/Year awarded)**

**Ph.D:**

**M.Tech:**

(i) C-V analysis of metal oxide field effect transistor by cv analyzer by **Ankur Kumar singh** ( 2002 ).

(ii) Synthesis and characterization of Bi-based Pb doped high temperature superconductor by **Avanish Kumar** (2002).

(iii) Synthesis and characterization of Bi-based High-Tc superconductor by **Baldev Raj** (2003).

(iv) Study of MOS structure using thermally stimulated current technique by **Umesh Singh** (2003).

(v) Fabrication and characterization of MOS structure by **Charan Singh** (2003).

**M.Phil:**

**M.Sc. :**

(i) Synthesis and Characterisation of $YBa_2Cu_3O_{7-\delta}$ high temperature superconductor by **Anuj Kumar** ( 2002 ).

(ii) On effect of thermo-mechanical ageing treatment on corrosion behaviour of 2014 aluminium alloy by **Saurabh Saxena** ( 2002 ).

(iii) Synthesis and characterization of thallium based high temperature superconductors by **Hemant Kumar Singh** and **Shyam Babu** (2003).

**Membership of Societies:**

**Other Honours: (Awards / prizes / Certificates etc. won)**

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| **Research Collaborations: Department of Physics, Banaras Hindu University, Varanasi-221 005** |
| **Social Interests/Activities:** |