

## Profile Page



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Designation : Associate Professor

Department : Physics

Qualification : PhD Physics (Inter University Accelerator Centre, New Delhi)  
MSc Physics (MJP Rohilkhand University)  
BSc Physics, Maths, Chemistry (MJP Rohilkhand University)

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### Research Interests :

Thin films, magnetic semiconductors, correlated electron materials.

### Other Profile Links :

#### Google Scholar Link :

Google scholar [Click Here](#)

### Journal Publications :

| Year | Journal                                                           | Publication                                                                                                                                                                                                                                                      |
|------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2022 | Radiation Physics and Chemistry, 191, 109863                      | Harpreet Singh, Palwinder Singh, Fouran Singh, Abhinav Pratap Singh, Akshay Kumar and AnupThakur, "Swift heavy ion irradiation induced microstructural transformation in selenium thin films"                                                                    |
| 2022 | Nuclear Inst. and Methods in Physics Research B, 519, 22-27       | Y. Kumar, R. Kumar, K. Asokan, Ramcharan Meena, R. J. Choudhary and A. P. Singh, "120 MeV Ag <sup>9+</sup> induced modifications in the structural, electrical and optical properties of La-doped SrSnO <sub>3</sub> thin films"                                 |
| 2021 | Journal of Materials Science: Materials in Electronics, 32, 11835 | Yogesh Kumar, Ravi Kumar, K Asokan, R J Choudhary, D M Phase and Abhinav Pratap Singh, "High mobility transparent and conducting oxide films of La-doped SrSnO <sub>3</sub> "                                                                                    |
| 2021 | Journal of Applied Physics, 129, 163902                           | Yogesh Kumar, Harsh Bhatt, C. L. Prajapat, A.P. Singh, Fouran Singh, C. J. Kinane, S. Langridge, S. Basu, and Surendra Singh, "Suppression of the superconducting proximity effect in ferromagnetic superconducting oxide heterostructures with ion-irradiation" |
| 2021 | Journal of Bio and Tribo Corrosion, 7, 123                        | Kamleshwar Kumar, Shailendra Singh Bhadauria & Abhinav Pratap Singh, "Effect of strain loading on stress corrosion cracking susceptibility of 316L stainless steel in boiling MgCl <sub>2</sub> solution"                                                        |

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|------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2021 | Radiation Effects and Defects in Solids, 176, 896                                                            | Neetu Kanda, Anup Thakur, Fouran Singh & Abhinav Pratap Singh, "Radiation hardness of Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub> thin films to 80 MeV Si ion irradiation"                                                                                               |
| 2021 | Superlattices and Microstructures, 158, 107028                                                               | Y.Kumar, R.Kumar, K.Asokan, R.Meena, R.J.Choudhary and A.P.Singh, "Transport properties of perovskite-based stannate thin films of La-doped SrSnO <sub>3</sub> "                                                                                                             |
| 2021 | Material Science and Engineering Technology, 52, 1201                                                        | Kamleshwar Kumar, Shailendra Singh Bhadauria & Abhinav Pratap Singh, "Mitigation of chloride driven stress corrosion cracking susceptibility of 316L austenitic stainless steel using plasma sprayed TiO <sub>2</sub> coating"                                               |
| 2020 | Nuclear Inst. and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, 467, 40 | Neetu Kanda, Anup Thakur, Fouran Singh, A.P.Singh, "Effect of ion irradiation on the optical properties of Ag-doped Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub> (GST) thin films"                                                                                        |
| 2020 | Ceramics International, 46, 17569                                                                            | Yogesh Kumar, Ravi Kumar, R.J.Choudhary, Anup Thakur and A.P.Singh, "Reduction in the tilting of oxygen octahedron and its effect on bandgap with La doping in SrSnO <sub>3</sub> "                                                                                          |
| 2019 | Heliyon, 5, e02933                                                                                           | Harpreet Singh, Palwinder Singh, Randhir Singh, Jeewan Sharma, A.P. Singh, Akshay Kumar, Anup Thakur, "Composition dependent structural phase transition and optical band gap tuning in InSe thin films"                                                                     |
| 2019 | Journal of Materials Science: Materials in Electronics, 30, 3604                                             | Palwinder Singh, A. P. Singh, Anup Thakur, "Thermal stability improvement and crystallization behavior of Ag doped Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub> phase change materials"                                                                                   |
| 2018 | Physical Review Applied, 10, 054070                                                                          | Palwinder Singh, A.P. Singh, Jeewan Sharma, Akshay Kumar, Monu Mishra, Govind Gupta, and Anup Thakur, "Reduction of Rocksalt Phase in Ag -Doped Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub> : A Potential Material for Reversible Near-Infrared Window"                  |
| 2017 | Appl. Phys. Lett., 111, 261102                                                                               | Palwinder Singh, A.P. Singh, Neetu Kanda, Monu Mishra, Govind Gupta, and Anup Thakur, "High transmittance contrast in amorphous to hexagonal phase of Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub> : Reversible NIR-window"                                               |
| 2016 | Thin Solid Films, 619, 144-147.                                                                              | Yogesh Kumar, Abhinav Pratap Singh, S.K. Sharma, R.J. Choudhary, P. Thakur, M. Knobel, N.B. Brookes, Ravi Kumar, "Ni 3d -- O 2p hybridization dependent magnetic properties of LaNiO <sub>3</sub> thin films"                                                                |
| 2013 | J. Magn. Mag. Mater., 328, 58-61.                                                                            | A.P. Singh, B.-G. Park, Ik-Jae Lee, Kyu Joon Lee, Myung-Hwa Jung, Jinhee Kim, J.-Y. Kim, "Hole mediated ferromagnetism in Cu-doped ZnO thin films on GaAs substrate"                                                                                                         |
| 2013 | Materials Chemistry and Physics, 140, 130-134.                                                               | S. Gautam, P. Thakur, P. Bazylewski, R. Bauer, A.P. Singh, J.Y. Kim, M. Subramanian, R. Jayavel, K. Asokan, K.H. Chae, G.S. Chang, "Spectroscopic study of Zn <sub>1-x</sub> CoxO thin films showing intrinsic ferromagnetism"                                               |
| 2013 | Phys. Rev. Lett. 111, 217001                                                                                 | Y. K. Kim, W. S. Jung, G. R. Han, K.Y. Choi, C.C. Chen, T. P. Devereaux, A. Chainani, J. Miyawaki, Y. Takata, Y. Tanaka, M. Oura, S. Shin, A. P. Singh, H. G. Lee, J.Y. Kim, and C. Kim, "Existence of Orbital Order and its Fluctuation in Superconducting Single Crystals" |
| 2012 | Appl. Phys. Lett., 101, 112103.                                                                              | Yogesh Kumar, Abhinav Pratap Singh, Surender Kumar Sharma, Ram Janay Chaudhary, Pardeep Kumar Thakur, Marcelo Knobel, Nick B. Brookes and Ravi Kumar, "Irradiation induced modification in transport properties of LaNiO <sub>3</sub> thin films: An x-ray absorption study" |
| 2012 | J. Korean Physical Society, 61, 1609 - 1614.                                                                 | H. Thakur, K. K. Sharma, Ravi Kumar, P. Thakur, Y. Kumar, A. P. Singh, S. Gautam and K. H. Chae, "On the Optical Properties of Ag <sup>+</sup> 15 Ion-beam-irradiated TiO <sub>2</sub> and SnO <sub>2</sub> Thin Films"                                                      |

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|------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2011 | J. Phys. Chem. C, 116, 722.           | Han-Koo Lee, Ilyou Kim, Hyeong-Do Kim, Byeong-Gyu Park, Hyun-Joon Shin, Ik-Jae Lee, A. P. Singh, Anup Thakur, and J.-Y. Kim, "Selective Reactions and Adsorption structure of pyrazine on Si(100): HRPES and NEXAFS study"                                        |
| 2011 | Appl. Phys. Lett., 98, 192512.        | Hardeep Thakur, P. Thakur, Ravi Kumar, N. B. Brookes, K. K. Sharma, A. P. Singh, Y. Kumar, S. Gautam and K. H. Chae, "Irradiation induced ferromagnetism at room temperature in TiO <sub>2</sub> thin films: x-ray magnetic circular dichroism characterizations" |
| 2011 | Adv. Sci. Lett., 4, 1                 | Aditya Sharma, K. D. Verma, Mayora Varshney, A. P. Singh, Yogesh Kumar, Suboth Srivastava, Y. K. Vijay, K. Asokan, R. J. Choudhary and Ravi Kumar, "Growth of nanopillars in SnO <sub>2</sub> thin films by ion irradiation and its gas sensing properties"       |
| 2011 | J. Appl. Phys., 110, 083718           | Hardeep Thakur, Ravi Kumar, P. Thakur, N. B. Brookes, K. K. Sharma, A. P. Singh, Yogesh Kumar, S. Gautam and K. Chae, "Modifications in structural and electronic properties of TiO <sub>2</sub> thin films using swift heavy ion irradiation"                    |
| 2011 | Chem. Phys. Lett., 511, 322           | Hardeep Thakur, Ravi Kumar, P. Thakur, N. B. Brookes, K. K. Sharma, A. P. Singh, Yogesh Kumar, S. Gautam and K.H. Chae, "Orbital anisotropy in SnO <sub>2</sub> thin films and its modification by swift heavy ion irradiation"                                   |
| 2011 | AIP Conference Proceedings, 1349, 697 | Yogesh Kumar, A. P. Singh, P. Thakur and Ravi Kumar, "X-ray Absorption Study of Epitaxial LaNiO <sub>3</sub> Thin Films"                                                                                                                                          |
| 2010 | J. Appl. Phys., 107, 093918           | Aditya Sharma, A. P. Singh, P. Thakur, N. B. Brookes, Shalendra Kumar, Chan Gyu Lee, R. J. Choudhary, K. D. Verma and Ravi Kumar, "Structural, electronic, and magnetic properties of Co doped SnO <sub>2</sub> nanoparticles"                                    |
| 2010 | J. Appl. Phys., 108, 083706           | Yogesh Kumar, R. J. Choudhary, A. P. Singh, G. Anjum, Ravi Kumar, "Evidence of quantum correction to conductivity in strained epitaxial LaNiO <sub>3</sub> films"                                                                                                 |
| 2010 | Physica B, 405, 2581                  | K. D. Sung, Ravi Kumar, A. P. Singh, C. S. Kim, K. J. Yee, J. H. Jung, "Photoluminescence of high energy Ar <sup>+</sup> -irradiated SrTiO <sub>3</sub> single crystal"                                                                                           |
| 2009 | J. Phys.: Condens. Matter, 21, 185005 | A. P. Singh, Ravi Kumar, P. Thakur, N. B. Brookes, K. H. Chae and W. K. Choi, "NEXAFS and XMCD studies of single-phase Co doped ZnO thin films"                                                                                                                   |
| 2009 | J. Appl. Phys., 105, 083707           | Huang-Chin Chen, Umesh Palnitkar, Way-Faung Pong, I-Nan Lin, A. P. Singh and Ravi Kumar, "Enhancement in electron field emission in ultrananocrystalline and microcrystalline diamond films upon 100 MeV silver ion irradiation"                                  |
| 2009 | Diamond & Related Materials, 18, 164  | Huang-Chin Chen, Umesh Palnitkar, Balakrishnan Sundaravel, I-Nan Lin, A. P. Singh, Ravi Kumar Ranade, "Enhancement of field emission properties in nanocrystalline diamond films upon 100 MeV silver ion irradiation"                                             |
| 2008 | J. Phys. D: Appl. Phys., 41, 155002   | Ravi Kumar, A. P. Singh, P. Thakur, K. H. Chae, W. K. Choi, Basavaraj Angadi, S. D. Kaushik and S. Patnaik, "Ferromagnetism and metal-semiconducting transition in Fe-doped ZnO thin films"                                                                       |

## Research Projects :

| Role | Project Type | Title | Funding Agency | From | To | Amount | Status | Co-Investigator |
|------|--------------|-------|----------------|------|----|--------|--------|-----------------|
|------|--------------|-------|----------------|------|----|--------|--------|-----------------|

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|----|----------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------|----------|--|----------|--|
| PI | Research | Study of evolution of ZnSnO <sub>3</sub> phase in pure and doped Zinc stannate thin films with swift heavy ion irradiation | IUAC                                       | 31/07/18 | 30/08/21 |  | Ongoing  |  |
| PI | Research | Electrical and optical properties of Zinc and Strontium Stannate thin films                                                | UGC-DAE Consortium for Scientific Research | 31/03/18 | 30/03/21 |  | Complete |  |

### Events Organized :

| Category          | Type     | Title                                                                                              | Venue                                                          | From       | To         | Designation                    |
|-------------------|----------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------|------------|--------------------------------|
| Short term course | National | Dielectric, Harmonic Oscillators and their Applications                                            | Dr B R Ambedkar National Institute of Technology, Jalandhar    | 24-02-2014 | 28-02-2014 | Coordinator                    |
| Seminar           | National | Use of Technology and Innovations in promoting Good Governance                                     | Dr B R Ambedkar National Institute of Technology, Jalandhar    | 23-12-2014 | 23-12-2014 | Coordinator                    |
| Conference        | National | 19th National Conference on Solid State Nuclear Track Detectors and Their Applications (SSNTDs-19) | Dr B R Ambedkar National Institute of Technology, Jalandhar    | 19-11-2015 | 21-11-2015 | Member of organizing committee |
| Short term course | National | Recent advances in Nanostructure Materials                                                         | Dr B R Ambedkar National Institute of Technology, Jalandhar    | 19-09-2016 | 23-09-2016 | Coordinator                    |
| STC               | National | Advanced Functional Materials                                                                      | Dr. B. R. Ambedkar National Institute of Technology, Jalandhar | 30-12-19   | 03-01-20   | Coordinator                    |
| Workshop          | National | Use of LaTeX in typesetting technical documents                                                    | Dr. B. R. Ambedkar National Institute of Technology, Jalandhar | 31-08-20   | 04-09-20   | Convener                       |
| STC               | National | Advanced Energy Materials                                                                          | Dr. B. R. Ambedkar National Institute of Technology, Jalandhar | 12-10-20   | 16-10-20   | Coordinator                    |

|                         |               |                                                                |                                                                |            |            |             |
|-------------------------|---------------|----------------------------------------------------------------|----------------------------------------------------------------|------------|------------|-------------|
| International symposium | International | International Symposium on Semiconductor Materials and Devices | Dr. B. R. Ambedkar National Institute of Technology, Jalandhar | 31-10-20   | 02-11-20   | Secretary   |
| Workshop                | National      | LaTeX for beginners                                            | NIT, Jalandhar                                                 | 04-01-2023 | 08-01-2023 | Coordinator |

### PhD Supervised :

| Scholar Name       | Research Topic                                                                                                                        | Status    | Year | Co-Supervisor    |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------|------|------------------|
| Mr. Yogesh Kumar   | Electrical and optical properties of zinc and strontium stannate thin films                                                           | Awarded   | 2023 |                  |
| Kamleshwar Kumar   | Stress Corrosion Cracking of 316L Austenitic Stainless Steel with multilayer TiO <sub>2</sub> Coating                                 | Awarded   | 2022 | Dr S S Bhadauria |
| Neha Chauhan       | Structural evolution of zinc stannate films with swift heavy ion irradiation                                                          | On going  | 2020 |                  |
| Bharpur Singh      | Investigation of correlated metal thin films as transparent conducting oxides                                                         | On going  | 2019 |                  |
| Bheem Khan         | Swift heavy ion induced modification in structural, electrical and optical properties of chalcogenide thin films                      | On going  | 2019 | Dr Anup Thakur   |
| Ms. Neetu Kanda    | Influence of swift heavy ion irradiation and implantation on the structural, electrical and optical properties of Ge-Sb-Te thin films | Submitted |      | Dr Anup Thakur   |
| Chetan Kumar Saini | To be decided                                                                                                                         | Ongoing   |      |                  |

### Admin. Responsibilities :

| Position Held | Organization                                                | From | To   |
|---------------|-------------------------------------------------------------|------|------|
| Hostel warden | Dr B R Ambedkar National Institute of Technology, Jalandhar | 2012 | 2019 |