

Dr. Sardar Sikandar Hayat

Associate Professor

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Education

- **PhD (Physics)** [2004-08] Pakistan (IUB)/USA (University of Central Florida, Orlando, FL, USA)
- **M.Sc (Physics)** [2001-03] The Islamia University of Bahawalpur
- **B.Sc** [1997-99] The Islamia University of Bahawalpur
- **F.Sc** [1995-97] Govt. Khawaja Fariad College of RYK
- **S.S.C** [1992-94] Govt. Colony H/S Liaquatpur

Personal

Father's Name	Noor Ahmad
Date & Place of Birth	July 20, 1978, Pakistan
CNIC #	31302-2146976-7
Passport #	AW6179762
Marital Status	Married
Nationality	Pakistani
Languages	English, Urdu, Punjabi and Saraiki.

Area of Research

- Molecular Dynamics studies of phenomena at the surfaces, nanostructures, diffusion, and vibrational dynamics.
- Thermal properties such as specific heat, thermal coefficient of expansion, structure factor and melting temperature.
- Crystal defects such as point and planar defects in bulk crystals of metals and alloys and interactions of defects with the interfaces.

- Atomistic study of cluster diffusion at compact and complex solid surfaces (with steps and kinks); and epitaxial layer growth at the surfaces.
- First principle studies of charge density and band structures in case of Metals and Binary compounds.

PhD Thesis Title

“Computer Simulation of Planar Defects in Crystals of Metals using Molecular Dynamics”

Professional Experience

Institution/Organization	Position /Job Title	Period	
		From	To
International Islamic University Islamabad	Associate Professor	30 – 08 – 2018	Continue
Hazara University, Mansehra	Assistant Professor (TTS)	04 – 11 – 2010	30 – 08 – 2018
Hazara University, Mansehra	Lecturer	04 – 03 – 2008	03 – 11 – 2010
Islamia University of Bahawalpur	Research Student of PhD and visiting Faculty	20 – 04 – 2004	19 – 04 – 2008

Teaching Expertise (Graduate and under Graduate level)

1. Solid-State Physics (I & II)
2. Materials Science (I & II)
3. Classical Mechanics
4. Advanced Mathematical Methods of Physics
5. Computational Physics
6. Atomic & Molecular Physics
7. Condensed Matter Physics
8. Research Methodology
9. Surface Physics
10. Modern Physics
11. Mechanics
12. Waves and Oscillations

Professional Responsibilities

- Member of Departmental Board of studies, Department of Physics, Ghazi University, Dera Ghazi Khan, 04/11/2021 to continue
- Member of Departmental Board of studies, IIUI, 31/08/2018 to continue
- Member of Subject Selection Committee, IIU in Spring 2020
- Member of Departmental DTRC, IIUI, 28/01/2019 to 20/04/2021

- Convener of Departmental graveness committee, HU, 21/7/2016 to 30/8/2018
- Departmental Focal Person of Laptop Scheme, HU, 21/7/2016 to 30/8/2018
- Member of departmental Board of studies, HU, 21/7/2016 to 30/8/2018
- Member of departmental committee for utility and maintenance, HU, 21/7/2016 to 30/8/2018
- Member of Departmental comprehensive examination committee for PhD, HU, 07/09/2010 to 30/8/2018
- Coordinator of general activities at department of Physics, Hazara University, 07/09/2010 to 30/8/2018
- Incharge of Computer lab

National/International Collaborations

- Computational Lab., Department of Physics, University of Central Florida, Orlando, Florida 32816, USA.
- LMPM, Mechanical Engineering Department, University of Sidi Bel Abbes, Sidi Bel Abbes 22000, Algeria.
- Institute of Science and Technology, University of Ain Temouchent, BP 284 RP, Ain Temouchent, 46000, Algeria.
- National Institute of Laser and Optronics, Nilore, Islamabad, 45650 Pakistan
- Materials Simulation Research Laboratory (MSRL), Department of Physics, Bahauddin Zakariya University Multan, Multan 60800, Pakistan.
- Department of Physics, Govt. College University Faisalabad, Faisalabad 38000, Pakistan.

Skills

- Strong knowledge and research experience in Molecular dynamics Technique
- Strong Programming expertise in Fortran Language
- Strong background of Crystallography, crystalline defects, thermal properties and surface diffusion
- Strong background of Materials Physics
- Expertise in running the Simulation Packages like Dynamo, Solids, Crystal, Lamps, Dyne 86.
- Familiar with DFT and MC Simulations such as Win2K, WASP, SLKMC CPMD and Quantum ESPRESSO.
- Expertise to work on Solaris, Linux and Unix operating systems

- Strong expertise in office, origin and supporting software.
- Advanced English level skills and excellent abilities in article writing, composing and literatures.

Distinction/Awards/Scholarship

- First Position in Secondary School Examination in Secondary School Liaquat Pur (1994)
- Indigenous PhD Fellowship from Higher Education in 2004
- IRSP Scholarship from Higher Education in 2007.
- Gold Medal on the basis of Research Performance from Hazara University , Mansehra (2015)

Students Supervision

PhD Produced at HU (as a Supervisor)

	<i>Name of Student</i>	<i>Title of Dissertation</i>
1	<i>Dr. Zulfiqar Ali Shah (HEC Scholar)</i>	<i>Study of Anharmonic Effects in the Presence of Adparticles at the Surfaces of Crystals of Nobel Metals</i>
2	<i>Dr. Zakirur-Rehman</i>	<i>Study of Thermal diffusive properties of d-Block transition Metals.</i>

MPhil Produced at HU (as a Supervisor)

	Name of Student	Title of Dissertation
1	Mr. Babar Shahzad Khan	<i>Interaction of point defects with grain boundaries in metals</i>
2	Mr. Zulfiqar Ali Shah	<i>Theoretical Study of Anharmonic Effects near the Interfaces of Crystals</i>
3	Mr. Raheel Iqbal	<i>Structural and magnetic properties metals and metallic Compounds</i>
4	Mr. Zakir ur Rehman	<i>Computational Study of Hetro-diffusion for fcc Metals</i>
5	Mr. S. Siddique ur Rahman	<i>Designing of Software for Three Phase Digital Energy Meter</i>
6	Mr. Abul Raouf Malik	<i>Study of the Efficiency of Phtosentizer Mediated Photodynamic Therapy on Cancerous Cell lines</i>

7	Mr. Kashif Khan	<i>Theoretical Investigation of Structural and Electronic Properties of Semiconductors</i>
8	Mr. Imran Ullah	<i>Diffusion of Pd Islands on Pt(111) surface and Pt Islands on Pd(111) surface: A Molecular Dynamics Approach</i>
9	Mr. Humayun Khan	<i>Computational Study of monomer and dimer Diffusion on Pt(111) and Pd(111) surfaces at different temperature</i>
10	Mr. Asghar Ali	<i>Computational study of effect of crystal defects on thermal Properties</i>
11	Mr. Hamid Hussain	<i>Computer simulation of crystal defects in noble metals</i>
12	Mr. Sibghtullah	<i>First Principle Study of electronic and optical properties for $X^{II}-Y^{IV}-Z_2^V$ ($X=Zn, Cd$; $Z=P, As$) Chalcocopyrites</i>
13	Mr. Waqas Gul	<i>Estimation of thermal properties of Pd and Pt A molecular dynamics approach</i>
14	Mr. M. Arif	<i>First Principle Study of XYZ half heusler compounds($X=Li, Na, K$; $Y=Mg$; $Z=N, P, As, Sb, Bi$) Chalcopyrite</i>
15	Mr. Rashid Iqbal	<i>An ab-initio study of structural, electronic and magnetic properties of ThO_2 and CmO_2 compounds</i>
16	Mr. Sarfaraz Ahmad	<i>Structural and electronic tic properties of AmO_2 and PuO_2 Compounds</i>
17	Mr. Shah Saleemullah sabir	<i>Study of dynamics of Cu and Ag trimer adatoms on compact surfaces at different temperatures</i>
18	Miss. Bushra Bibi	<i>Coalescence and deposition of silver nanoparticles on surface of silver</i>
19	Mr. Yasir Khan Abbasi	<i>Diffusion of Ag Clusters on different surfaces of Cu</i>
20	Mr. Wajid Ali	<i>Computational study of dynamics of small silver clusters on silver surface</i>
21	Mr. Fazal Ullah	<i>Computational study of the dynamics and diffusion of small Ag island on Cu(111) surface</i>
22	Mr. Zafar Javid	<i>Computational study of Thermal diffusion dynamic behaviour of two dimensional Ag-small clusters on Ag(111) surface.</i>
23	Mr. Asad Mehmood Ur	<i>Analysis of Plasma generated by laser induced breakdown Spectroscopy</i>

	Rehman	
24	Mr. Wajid Ali	<i>Virtual simulation in external beam radiotherapy and comparison with 2D simulation</i>
25	Mr. Fawad Farooq	<i>Compositional Analysis of Archeological Artifacts using laser induced breakdown spectroscopy</i>
26	Mr. Sohaib Khan	<i>Simulation of ignition processes in AC plasma Torch</i>
27	Miss. Anum Pervez	<i>Computational Study of interaction between clusters on silver (111) surface</i>
28	Miss. Faiza Rehman	<i>Computational study of thermal diffusion dynamic behavior of 2-dimensional Cu small clusters on Cu(111) surface</i>

MPhil Produced at HU (as a Co-Supervisor)

	<i>Name of Student</i>	<i>Title of Dissertation</i>
1	Muhammad Khuram	<i>Theoretical Study of Crystal defects in Nobel Metals</i>
2	Shaista Rehman	<i>Study of heterogeneous adatoms clusters diffusion at Cu(111) surface</i>
3	Humara Batool	<i>Study of homogeneous adatoms clusters diffusion at Ag(111) surface</i>

MSc/BS Projects Completed at IIU

	<i>Name of Student</i>	<i>Registration No.</i>	<i>Title of Dissertation</i>
1	Khuram and Nauman		<i>How natural Fountain develops in Hilly Areas</i>
2	M. Naveed M. Jumshaid Naeem	779-BAS/MSCPHY/F17 786-FBAS/MSCPHY/F17	<i>Study of piezoelectricity in Ferroelectrics at different temperatures</i>
3	Mubashir Mehboob, M. Anees M. Usama	1015-FBAS/BSPHY/F16, 1047-FBAS/BSPHY/F16 1055-FBAS/BSPHY/F16	<i>Computational Study of Electronic Structure of SrTiO₃ First Principle Calculation</i>
4	Irfan Ali Khan Mohsin Rasheed	965-BAS/MSCPHY/F18 987-FBAS/MSCPHY/F18	<i>Interaction of Points Defects With Twin Boundary of Crystal Structure</i>
5	Inam Ullah Khan, M. Abdullah Wajid Ali	1020-FBAS/BSPHY/F16, 1021-BAS/BSPHY/F16 1033-FBAS/BSPHY/F16	<i>Computational Study of Electronic Structure of PbTiO₃ First Principle Calculation</i>

MS Produced at Physics Department of IIU

1	Adeel Ahmad Awan	551-FBAS/MSPHY/F18	<i>Effect of C and N Co-doping on the Electronic Structure of SrTiO₃</i>
2	Mujeeb Ur Rehman	556-FBAS/MSPHY/F18	<i>Computational Studies of Dynamics and Diffusion of Small Clusters of Zr on Cu(111) Surface</i>
3	Mujahid Ali	568-FBAS/MSPHY/F 18	<i>A First Principle Study of New Lead (Pb) Free Double Perovskite for Solar Cell Application</i>
4	Muhammad Hashim	596-FBAS/MSPHY/F19	<i>Effect of Crystal Defects on Thermal Properties of Pd and Pt: A Molecular Dynamics Approach</i>
5	Assad Manzoor	600-FBAS/MSPHY/F19	<i>Computational Studies of Anharmonic Effects at the Surface of Cu in the Presence of Ag Ad-particles</i>
6	Syed Hannan Ali Bukhari	601-FBAS/MSPHY/F19	<i>Interaction of Point Defects with Twin-boundaries in Silver Crystal</i>
7	Shanawar Khan	621-FBAS/MSPHY/F19	<i>Thermal Diffusive Behaviour of Cu and Zr Small Clusters on Al(111) Surface: A Molecular Dynamics Approach</i>

PhD under Supervision at Physics (IIU)

	<i>Name of Student</i>	<i>Reg. No.</i>	<i>Title of Project</i>
1	Qaiser Rafiq	92-FBAS/PHDPHY/S19	<i>Simulation of d-Block Noble Metals Surfaces in the Presence of Small Homogeneous and Heterogeneous Adsorbed Islands</i>
2	Asif Zahir	74-FBAS/PHDPHY/S16	<i>Quantum-coherence-assisted Optical Properties and Surface Plasmon Polaritons Drag via Quantum Dots-metallic Interfaces</i>

Examiner of PhD Students at Phys. Department

	<i>Institution</i>	<i>Name of Student</i>	<i>Title of Project</i>
1	International Islamic University	Dr. Faisal Zaib	<i>Synthesis and Characterization of Coated and Uncoated Ferrite Magnetic</i>
2	Hazara University Mansehra	Dr. Sardar Siddique ur Rahman	<i>“Green Synthesis and Characterization of Fe₂O₃, ZnO and Ag Nanoparticles for Bio-Labeling and Biosensor Applications</i>
3	International Islamic University Islamabad	Dr. Kashif Ali	<i>Synthesis and Analysis of Physical Properties of Iron Oxide Based nanocomposites</i>

4	International Islamic University Islamabad	Dr. Hur Abbas	<i>Effect of Doping and Coating on Magnetic and Optical Properties of NiO Nanoparticles</i>
5	International Islamic University Islamabad	Dr. Muhammad Iftikhar	<i>Aerosol-Cloud Radiative Properties and its Impact on Climate</i>
6	Hazara University Mansehra	Dr. Munir Ahmad	<i>Synthesis of Metal Nanocomposites by Using Green and Chemical Route for Multiple Applications</i>

International Publications

1. **Sardar Sikandar Hayat**, M. A. Choudhry and S. A. Ahmad, *Effect of twin boundaries on melting of aluminum*, J Mater Sci (2008) 43:4915-4920. (ISSN NO. 22-2461, I.F. 3.553) <http://dx.doi.org/10.1007/s10853-008-2715-x>
2. **Sardar Sikandar Hayat**, M. A. Choudhry, S. A. Ahmad, J. I. Akhter and A. Hussain, *Study of thermal properties of Ni using Embedded-atom method*, Ind J Pure & Appl Phys (2008) 46:771-775. (ISSN NO. 0019-5596, I.F. 0.653)
3. A. Hussain, M. A. Choudhry, **Sardar Sikandar Hayat**, *Effects of ordering on thermal properties of Ni₃Al intermetallic alloy system: A Molecular dynamics approach*, Chinese Journal of Physics (2009) 47(3):344-355. (I.F. 2.638)
4. **Sardar Sikandar Hayat**, M. A. Choudhry, A. Hussain, S. Alam, Sheikh A. Ahmad and I. Ahmad, *Nanoscale Relaxation near the Twin Interfaces of Palladium and Platinum*, Ind J Pure & Appl Phys (2009) 47:730-736. (ISSN NO. 0019-5596, I.F. 0.653)
5. **Sardar Sikandar Hayat**, Marisol Alcántara Ortigoza, M. A. Choudhry, and Talat S. Rahman, *Diffusion of Cu monomer and dimer on Ag(111) studied with the Molecular Dynamics Method*, Phys. Rev. B (2010) 82:085405-085415. (I.F. 3.772) <https://doi.org/10.1103/PhysRevB.82.085405>
6. Fekirini Hamida, Boualem Serier, Bouafia Farida, **Sardar Sikandar Hayat**, Bachir Bouiadjra Belabess. *Computation of the Stress Intensity Factors for Interface Cracks in Fibrous Composite*, American Scientific Publishers (2011)
7. Fekirini Hamida, Boualem Serier, Bouafia Farida, **Sardar Sikandar Hayat**, Bachir Bouiadjra Belabbes; *Effect of Density and Pointed Corner Degree of Pore on Local*

Stress in Welded Structures: Defect in Marine Structures, American Scientific Publishers (2011)

8. F. Hussain, **Sardar Sikandar Hayat**, and M. Imran, *Interaction of small vacancy clusters with (114) twin-boundary in gold*, Physica B. (2011) 406:1060-1064 (ISSN: 0921-4526, I.F. 1.902) <https://doi.org/10.1016/j.physb.2010.11.001>
9. **Sardar Sikandar Hayat**, *Pop-up of atoms among copper 13-atom island on Ag(111)*, Computational material science, (2011) 50 (4):1485-1489. (ISSN: 0927-0256, I.F. 2.863) <https://doi.org/10.1016/j.commatsci.2010.12.003>
10. A. Hussain, **Sardar Sikandar Hayat** and M. A. Choudhry, *Ab-initio calculations of study of electronic structure and optical properties of TiAl alloy*, Physica B: Condensed Matter, (2011) 406:1961-1965 (ISSN: 0921-4526, I.F. 1.902) <https://doi.org/10.1016/j.physb.2011.02.065>
11. **Sardar Sikandar Hayat**, I. Ahmad, and M. A. Choudhry, *Diffusion of 6-atom Cu island on Cu(111) and Ag(111)*, Chinese Physics Letters (2011) 28(5):053601-053604 (ISSN 0256-307X, I.F. 1.066)
12. **Sardar Sikandar Hayat**, Zakir-ur-Rehman, Ghulam Hussain, and N. Hassan, *Copper 10-atom Island Diffusion on Ag(1 1 1) Surface*, Chinese Journal of Physics (2011) 49(6):1264-1272 (ISSN: 0577-9073, I.F. 2.638)
13. M. Atif, R. Malik, M. Fakhar-e-Alam, **S. S. Hayat**, S. S. Z. Zaidi, R. Suleman, and M. Ikram, *In Vitro studies of Phtotfrin[®] mediated photodynamic therapy on human Rhabdomyosarcoma cell line (RD)¹*, Laser Physics (2012) 22(1):286-293; <https://doi.org/10.1134/S1054660X11230010> (ISSN: 1054-660X, I.F. 3.605)
14. M. Atif, R. Malik, M. Fakhar-e-Alam, **S. S. Hayat**, S. S. Z. Zaidi, R. Suleman, and M. Ikram, *Erratum: In Vitro studies of Phtotfrin[®] mediated photodynamic therapy on human Rhabdomyosarcoma cell line (RD)*, Laser Physics (2012) 22(2):477-478 (ISSN: 1054- 660X, I.F. 3.605) <https://doi.org/10.1134/S1054660X12020338>
15. N. Hassan, M. Irfan, N. A. Khan, S. Khan, A. Shakoor, A. Majid, and **Sardar Sikandar Hayat**, *Annealing effect on the excess conductivity of Cu_{0.5}Tl_{0.25}M_{0.25}Ba₂Ca₂Cu₃O_{10-δ} (M=K, Na, Li, Tl) superconductors*, Journal of Applied Physics (2012) 111(5):053914-053919 (ISSN: 0021-8979, I.F. 2.328) <https://doi.org/10.1063/1.3684601>

16. Hamida Fekirini, Boualem Serier, Farida Bouafia, Bel Abbas Bachir Bouiadjra, **Sardar Sikandar Hayat**, *Effect of precipitate-precipitate interaction on residual stress in welded structure*, Computational Material Science, (2012) 65:207-215 (ISSN: 0927-0256, I.F. 2.863) <http://dx.doi.org/10.1016/j.commatsci.2012.06.005>
17. F. Hussain, **Sardar Sikandar Hayat**, M. Imran, S. A. Ahmad, and Farida Bouafia, *Sintering and Coalescence of nanoparticles on Surfaces of Metals: A Molecular Dynamics Approach*, Computational Material Science, (2012) 65:264-268 (ISSN: 0927-0256, I.F. 2.863) <http://dx.doi.org/10.1016/j.commatsci.2012.07.033>
18. S. Souad, Boualem Serier, F. Bouafia, Bel Abbas Bachir Boudjra, **Sardar Sikandar Hayat**, *Analysis of the stresses intensity factor in alumina–Pyrex composites*, Computational Material Science, (2013) 72:68-80; (ISSN: 0927-0256, I.F. 2.863) <http://dx.doi.org/10.1016/j.commatsci.2013.01.030>
19. S. Souad, Boualem Serier, F. Bouafia, Bel Abbas Bachir Boudjra, **Sardar Sikandar Hayat**, *Corrigendum to Analysis of the stresses intensity factor in alumina–Pyrex composites*, Computational Material Science, (2013) 74:165 (ISSN: 0927-0256, I.F. 2.863) <http://dx.doi.org/10.1016/j.commatsci.2013.03.038>
20. F. Hussain, **Sardar Sikandar Hayat**, Z. A. Shah, and S. A. Ahmad, *Effect of Crystal Defects on Melting Temperature of Ni and Al*, Chinese Journal of Physics (2013) 51(2):356-367 (ISSN: 0577-9073, I.F. 2.638) <http://dx.doi.org/10.6122/CJP.51.347>
21. F. Hussain, **Sardar Sikandar Hayat**, Z. A. Shah, N. Hassan and S. A. Ahmad, *Interaction of Point Defects with Twin-boundaries in Au: A Molecular Dynamics Approach*, Chinese Physics B (2013) 22(9):096102-096110 (ISSN 1674-1056, I.F. 1.469) <http://dx.doi.org/10.1088/1674-1056/22/9/096102>
22. Farida Bouafia, Boualem Serier, Nassim Serier, **Sardar Sikandar Hayat**, *Effect of Density and Pointed Corner Degree of Pore on Local Stress in Welded Structures: Defect in Marine Structures*, ISRN Mechanical Engineering, (2014) 2014: 1-7 (I.F.1.730) <http://dx.doi.org/10.1155/2014/834659>
23. G. Murtaza, Sibghat-Ullah, R. Khenata, A. H. Reshake, **S. S. Hayat**, *Optoelectronic properties of $XYAs_2$ ($X=Zn, Cd$; $Y=Si, Sn$) chalcopyrite compounds*, journal of optoelectronics and advanced materials (January- February 2014), Vol. 16, No. 1-2, p. 110-116 (I.F. .56).

24. Sibghat ullah, G. Murtaza, R. Khenata, A.H. Reshak, **S. S. Hayat**, S. Bin Omran, *Towards from indirect to direct band gap and optical properties of XYP2 ($X^{1/4}\text{Zn}$, Cd; $Y^{1/4}\text{Si}$, Ge, Sn), Physica B.* (2014) 441:94-99 (ISSN: 0921-4526, I.F. 1.45).
<http://dx.doi.org/10.1016/j.physb.2014.02.021>
25. Z. A. Shah, **Sardar Sikandar Hayat**, Z. Rehman, Farida Bouafia, *The molecular dynamic study of anharmonic effects at Cu(111) and Ag(111) surfaces in the presence of Cu-and Ag-trimer island*, Physics Letters A, 378 (2014) 1727–1732 (I.F. 1.86).
<http://dx.doi.org/10.1016/j.physleta.2014.04.018>
26. Z. A. Shah, **Sardar Sikandar Hayat**, Z. Rehman, S. S. Rahman and F. Bouafia, *Vacancy generation and adsorption of Cu atom at Ag(1 1 1) surface during diffusion of Cu-trimer*, Surface Review and Letters, Vol. 21, No. 5 (2014) 1450072-7 (ISSN:1739-6667, I.F. 0.734) <http://dx.doi.org/10.1142/S0218625X14500723>
27. Z. Rehman, **S. S. Hayat**; *Thermal Diffusion Dynamic Behavior of Two-Dimensional Ag-Small Clusters On Ag(1 1 1) Surface*, Surface Review and Letters, Vol. 22, No. 5 (2015) 1550067 (ISSN:1739-6667, I. F. 0.835) <https://doi.org/10.1142/S0218625X15500675>
28. Babar Shazad Khan, Adnan Saeed, **Sardar Sikandar Hayat**, Aiman Mukhtar, Tahir; Mehmood, *Mechanism for the Formation of Cuprous Oxide Nanowires in AAO template by Electrodeposition*, Int. J. Electrochem. Sci., 12 (2017) 890 – 897, (ISSN:1452-3981, I. F. 1.573) <https://doi.org/10.20964/2017.02.42>
29. Zulfiqar Ali Shah, Sardar Sikandar Hayat and et al.; *Effect of Temperature on Diffusion Parameters for 2-Dimensional Copper 5-Atom Island*, Research & Reviews: Journal of Material Sciences, 5(6) (2017) 9-16 (ISSN:2347-2278, I. F. 0.57) <https://doi.org/10.4172/2321-6212.1000189>
30. **Sardar Sikandar Hayat**, Zakirur-Rehman and Z. A. Shah; *A study of dynamical evolution of small two-dimensional Copper islands' diffusion on Ag(1 1 1) surface and observed surface effects*, Modern Physics Letters B (2017) 1750316-18 (ISSN:0217-9949, I. F. 0.731) <https://doi.org/10.1142/S021798491750316X>
31. M Asghar Khan, Zulfiqar Ali Shah, Jabran Khan, Yasir Arafat, Sardar Sikandar Hayat, and Munawar Saeed; *Principle Investigation of Structural, Electronics and Chemical Properties of Sn Doped PbX (X=S, Se, Te)*, Journal of Theoretical & Computational Science, 4(2): (2017) 159. (ISSN:1096-9918, I. F. 0.5) <http://dx.doi.org/10.4172/2376-130X.1000159>

32. Humaira Latif, Adnan Saeed, Sadaf Jamil Rana, Babar Shahzad Khan and Sardar Sikandar Hayat; *Nitrogen dissociation and its excitation/vibrational temperature with hydrogen admixture in 50 Hz DC discharge*, Radiation Effects & Defects In Solids, 172 (2017), (ISSN:1042-0150, I. F. 0.642) <http://dx.doi.org/10.1080/10420150.2017.1413648>
33. Muhammad Imran, Fayyaz Hussain, Sardar Sikandar Hayat, et al.; *A study of surface diffusion of ternary (Cu-Ag-Zr)clusters for applications in thin film formation*, Surf Interface Anal. (2019)1-9, (ISSN:1096-9918, I. F. 1.665) <http://dx.doi.org/10.1002/sia.6608>
34. Fayyaz Hussain, Muhammad Imran, Umbreen Rasheed, R.M. Arif Khalil, Anwar Manzoor Rana, Farhana Kousar, M. Arshad Javid and S.S. Hayat; *A First Principle Study of Graphene/Metal-Oxides as Nano Composite Electrode Materials for Supercapacitors*, Journal of Electronic Material, (2019) (ISSN:0361-5235, I. F. 1.676)<https://doi.org/10.1007/s11664-019-07064-2>
35. Lamia Hadid, Farida Bouafia, Boualem Serier, Sardar Sikandar Hayat*, *Finite element analysis of the interface defect in ceramic-metal assemblies: Alumina-Silver*, Frattura ed Integrità Strutturale, 53, pp. 1-12. doi: 10.3221/IGF-ESIS.53.01 (2020) (ISSN 1971-8993, I. F. 1.07) <https://doi.org/10.1007/s11664-019-07064-2>
36. Sidra Shafiq, Altaf Hussain, Muhammad Nasir Rasul, Sardar Sikandar Hayat, et al; *First-principles structural, electronic, optical and bonding properties of scandium based ternary indide system $Sc_5T_2In_4$ ($T = Ni, Pd, Pt$)*, Bulletin Material Science, 43, pp. 284-293 (2020) (ISSN: 02504707, 09737669, I. F. 1.499) <https://doi.org/10.3221/IGF-ESIS.53.01>.
37. A. Tahir, A. Saeed, I. Ramzan, Sardar Sikandar Hayat, W. Ahmad S. Naeem, M. Afzal, A. Mukhtar, T. Mehmood, B. S. Khan, Mechanism for the formation of magnetite iron oxide nanostructures by Ficus carica dried fruit extract using green synthesis method, *Applied Nanoscience*, 11, pp. 175 (2021) (ISSN: 02504707, 09737669, I. F. 2.88) DOI: [10.1007/s13204-021-01860-1](https://doi.org/10.1007/s13204-021-01860-1)
38. Sardar Sikandar Hayat, Q. Rafiq, M. Imran, F. Hussain, B. S. Khan, A. Zahir, M. A. Javid, and Z. Wazir, Evaluation of Anharmonicity in Nature of Homo- to Heterogeneous Adsorbed clusters on Ag (111) Surface for the Application of Thin Film Engineering, *IJLEMR*, 6(7), pp. 82-88 (2021) (ISSN: 2455-4847, I. F. 2.56)
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