



**Name: Dr. (Mrs) Suman Kumari Mishra, FNASc**

**Date of birth: 14<sup>th</sup> July 1964**

**Designation and address:** Dr. (Mrs) S. K. Mishra, F.N.A.Sc.,  
 Director, CSIR-Central Glass and Ceramic Research Institute (CGCRI),  
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 Ex- Director, CSIR- CMERI, 11 months, Additional charge.  
 Ex-Director IICB, Additional charge, 1.5 months

**Academic qualification: Ph.D, Materials Science, Indian Institute of Technology, Kharagpur-India, 1995**

**Academic & other qualification:**

S.No.	Degree	Subject	Class CGP marks	Year	University	Additional particulars
1.	B Sc (Hons)	Physics (Hons) Statistics Maths	Ist 74 %	1983	Ranchi	Ist class with distinction in maths and statistics
2.	M Sc	Physics	1 <sup>st</sup> , 75%	1985*	Ranchi	I st class 1 <sup>st</sup>
3.	Ph. D. Materials science	Deposition of YBCO superconducting film by magnetron sputtering	By thesis	1995	IIT Kharagpur	Materials Science

\*Due to session late of university result came in 1987 December.

**Field of specialization:** Synthesis and processing of nano and fine ceramics by novel routes, nano and nano-composite coatings for wear, high temperature and oxidation resistance, corrosion resistance applications by different processing routes such as sputtering, plasma spray, HDPS. Superconductors and devices, mechanical, microstructural and functional properties correlation of nano and fine materials and their coatings. Solar thermal reflector and Thermoelectric coatings

## Professional experience

S No	Period	Place of employment	Designation
1.	Jan 89-Dec 90	IIT Kharagpur	JRF
2.	Jan 91-Dec93	IIT Kharagpur	SRF
3	Jan 94-Jan96	CSIR-National metallurgical Laboratory Jamshedpur	Research Associate
4	Feb 1996-Dec 2000	CSIR-CSIR-National Metallurgical Laboratory, Jamshedpur	Scientist C
5	Jan 2001- Dec.2003	CSIR-National Metallurgical Laboratory, Jamshedpur	Scientist EI
6	Jan 2004- Dec 2007	CSIR-National Metallurgical Laboratory, Jamshedpur	Scientist EII
7	Jan2008-Dec 2012	CSIR-National Metallurgical Laboratory Jamshedpur	Sr. Pr. Scientist, Scientist F
8	Jan 2013-15 Jan 2021	CSIR- National Metallurgical Laboratory Jamshedpur	Chief Scientist, Scientist G
9	Jan 2021-Contd.	CSIR-Central Glass and Ceramic Research Institute (CGCRI), Kolkata	Director
10	15 March 2022-8 <sup>th</sup> Feb 2023	CSIR-Central Mechanical Engineering and Research Institute (CMERI), Durgapur	Director, additional Charge
11	October 2023- Novemeber 2023	CSIR-Indian Institute of Chemical Biology, IICB, Kolkata	Director, additional Charge

## Publication and patent:

**Patent: 15** (5US, 2 European, 1 Japan, 7 Indian) –**Appendix 1**

**Publication in SCI journal: 125**(121 published rest in review), List is given in **Appendix-1**

**Book chapter:7** , **conference paper/abstracts: 91**, **Appendix 1**

**Technology Transfer: 2** Nos on High temperature boride powders, Aum Technologies, Gujrat

**Invited lectures (India and abroad) : 68** (**Appendix 1**)

## Awards and recognition

- Associate Editor, Trans IIM, Springer
- Associate Editor, Defence Science journal, India
- Fellow of National Academy of Sciences India (NASI) 2018.

- IIM National Council Member: July 2006 -2016 July. Again inducted from 2021-continued.
- **Dr R. V. Tamhankar Memorial lecture-** 2024, Powder metallurgy Association of India. (PMAI), February **2024**.
- **11<sup>th</sup> Prof. S.P.Sengupta Memorial lecture, MRSI, Kolkata, 2022**
- **2012 Best metallurgist of the year, awarded by Ministry of Govt of India.**
- Invited for writing a chapter in Handbook on Aerospace Materials from CRC press, a world renowned accepted CRC press for hand book, **published in Nov 2012**
- Member of International Editorial Board of the IIM-Universities Press for publishing books, 2010
- **Vasvik award (Smt Chandaben Mohanbai award given by Vasvik foundation) 2004 in women category , announced and awarded in 2008.**
- Nijawan award 2008, for best publication, given by NML on the basis of review of peers of country.
- Fellow of Indian Institute of ceramics 2007  
Best paper award in products category by IIM, poster at NMD Jamshedpur, Nov. 2006
- Visited China as member of CSIR delegation representing materials science of CSIR for possible collaboration between CSIR and NSFC China
- Best inhouse project 2003, judged in 2005, NML
- Best paper award in Materials Science Processing at NMD 2005, IIT Chennai
- **MRSI Medal'2004**
- **CSIR Raman Fellowship'2002**
- **CSIR Young Scientist Award In Eng.Sc.- 1999**
- Best paper award in Materials Science at NMD 1999, IIT Kanpur.
- **University Gold Medal for being 1<sup>st</sup> Class 1<sup>st</sup> in M.Sc 1985 batch, Ranchi University**
- Best paper award in Materials Science at NMD 1999, IIT Kanpur.

**Supervised thesis: Ph.D :** 7 (4 completed, 3 ongoing), **M.Tech :** 28, **B.Tech :** ~36

#### **Administrative and other responsibilities**

- **Director, CSIR-Central Glass & Ceramic Research Institute, Jan 2021-contd**
- **Director, CSIR-Central Mechanical Engineering Research Institute (CMERI), Durgapur-March 2022-February 2023 (additional charge)**
- **Director, CSIR-Indian Institute of Chemical Biology (IICB), Kolkata 1<sup>st</sup> October-November 2023.**
- Head Human resource group, NML since 2<sup>nd</sup> Feb 2017-continued.
- Head corrosion and Surface engineering Division at NML Jan 2014- March2017
- Head Analytical Chemistry Division, additional Charge, June 2016 to March 2017.
- **Prof. & Dean, Engineering Sciences, AcSIR, Since July 2017- continued**
- **Prof and Associate Dean, Engineering Sciences, AcSIR- since 2011- June 2017**
- Technical purchase committee TPC at NML, Chairperson since April 2009 –May 2013
- Standing purchase committee at NML, SPCII, member since 2002-2009 March.
- Member of Management Council of NML for 4 years
- Member of RAMC ( in house research committee of NML) for 5 years

- PAC member of DST, Science and Technology for women, [ 2 terms (6 years) served]
- PAC Member of DST, Science and Society, 2 terms served
- National IIM council Member since 2006-2014.

**Sponsored projects undertaken as project leader & co project leader: more than 25 (detail is given in appendix 2)**

Industrial projects: 10 (total worth ~500 Lakhs)

Govt funded projects: 15 (Total contract value ~2500L)

**Membership:**

- IIM council member for 2006-2014, again inducted in 2021-contd
- Life member: MRSI, IIM, Plasma Society India, Indian Ceramic Society,
- Member: Indian National Science Academy

**Regular Reviewer of ISI journals:**, J. Am. Ceramic Society, J. Mater.. Res, Materials and Metal Transaction A &b,. Thin solid films, J. Materl. Sci., Composite science and technology. Surface coating and Technology, J Vac. Sci. Technol., Thin solid films, J. Materials performance, Materials letter, Applied surface science, corrosion, Materials Science and Engineering A and B, Journal of Materials and Design. Combustion Science and Technology, etc

**Abroad Visits for R & D purpose:**

- Colorado school of mines, USA as Raman Research Fellow
- Institute of Mackrokinetics and materials science, Russian Academy of sciences ( thrice visited) under ongoing collaborative project.
- China, several universities and National Science Foundation China as a member in CSIR delegation for possible R& D Collaboration.
- National technical University, Singapore for discussion of collaoartive project, chair a session as chairpersont and deliver invited talk on international conference on THIN Film 2008..
- University of florida, invited speaker in sp. workshop on “Boron rich solids” organised by NATO research and University of florida USA
- Boeing, Seattle, USA
- Singapore June 2011, as invited speaker and to chair one session in international conference on “ Materials for Advan ced Technology” organised by MRS, NNU, NTU Singapore.
- USA Seattle April 2013, Boeing research and development and speaker at Internation Conference on “ Advanced Aerospace Materials and processes” organised by ASM International.
- Berlin, Germany as a lead for the nation as well council member to International Glass conference 2022 to bring the baton of of ICG congress t India after 39 years to be held in India.

**Brief of the R&D and Administrative experience**

The contribution is very significant in the field of Materials Science and Technology in the area of innovative processing of advanced ceramics & nano and nanocomposite coatings for

defence, aerospace, protective wear and corrosion, and renewable or alternative energy resource applications. Some the materials such as high-temperature boride and coatings with high temperature, high hardness with high toughness are very challenging problems to get the desired properties, but it has been achieved. Most of the innovative work has the national and international patent and the research work have been published in highly reputed SCI journals of materials Science/Engineering and are well cited. Two technologies based on high-temperature Zr and Ti-diboride fabrication have been transferred to industry; further defence laboratories of India have shown interest for it and the related developments. A very good and successful experience is there in working with leading Industries as a leader. Few of them are Tata Steel, Aditya Birla S &T corporation, Boeing, USA, where not only the development of the desired coatings and materials as per the expectation standard from those industries were made, but also have national and international joint patents with them on the work. Different important National forums have recognized the contributions in materials science and self and the group have received many coveted awards and fellow of the academy.

The research contributions is very significant in the field of Materials Science and Technology in the area of innovative processing of ceramic & nano coatings in general and self-propagating high temperature synthesis (SHS) of high temperature materials, development of hard & tough coatings on different industrially important Materials in particular. These materials such as high temperature borides and coatings have been developed by innovative industrially viable processes, which is normally difficult by conventional process and are very important for defense, aerospace and other industries that will enhance the performance of the industrial components. **Two technologies based on high temperature Zr and Ti-bordide fabrication have been transferred.**

The contribution is significant in the understanding of mechanisms of nano composite TiSiBC, TiSiBCN, TiBN, SiCN, CN Al-SiN coatings, and high temperature borides and SHS processing of materials. Novel coatings for corrosion resistance against foul fuel protection and antibacterial Zn-Ni-Cu system by thermal spray for oil tank and marine system. The Ti-Si-B-C coating with high hardness, toughness, wear resistance, corrosion and high temperature oxidation resistance was developed. The process is being discussed for possible transfer to piston industry. A modified Hot-dip Al-Si-Mg-Cu-Sc coating on steel sheet with excellent in corrosion resistance as well as hot forming application is developed and has been patented jointly with Tata steel. In the area of alternative energy harvesting, she has started work on SnSe system thin films, which are very less studied yet. The properties of SnSe obtained showed two orders higher power factor compared to the reported values. Further research is in progress. The contribution for protective multilayer with increased solar reflectivity to near 95% on aluminium with excellent protection against corrosion, humidity, and solar radiation for solar thermal applications is significant. The alternative thermal barrier coatings for turbine engines for newer systems have been researched. The newer Aluminum based coatings as alternative to candmium coating meeting all aerospace standards have been developed. **Several patents national and international have filed and granted. The research findings are published in leading materials and metallurgical high impact factor journal and is well cited. Some of the leading industries have financed and working together such as Tata Steel, Boeing USA, Aditya Birla S&T group.** Such processes, materials and coatings are the need of hour and will be very useful in energy, automobile, aerospace, defense, steel sector to meet the complex challenges and enhance the performances of the components. Different Important national forums have recognized the contributions in

materials science and many coveted awards have been received by self as well by the different members of the group.

Along with the high-quality contributions in science & technology and leadership, highly skilled research and technological manpower are developed by her by supervising them for different degrees such as PhD (7 nos, 6 completed, 1 ongoing.), M.Tech projects (40), B. Tech (more than 36), 12 Project assistants, which has lot beneficial effects to the nation. The M.Tech level courses on Thin film Technology, surface Engineering, Materials characterisation, have been made for AcSIR and have taken courses on that for different semesters for Ph.D and Mtech program of AcSIR.

Besides research and development, many administrative responsibilities (listed in the CV) as head of the divisions, Chairperson of important committees, Associate Dean and Dean in AcSIR for several years and continuing as dean there and have delivered a quality leadership and decisions.

**Now as Director CGCRI, she has catalyzed and catalyzing technology transfers, Industrial projects and strategic projects for the components rather than only material development and has been successfully accomplishing as Director of the Institute. Major projects in the area of Sesors and their manufacturing ecosystem for structure health monitoring, high power LASERS, 10 KW Solid Oxide Fuel cell development and deployment / demonstration at HPCL, Waste to Wealth mission projects, Hydrogen generation by Solid oxide Electrolyser in Hydrogen mission, space grade optical glasses, Glass-ceramics armors has been catalyzed and brought to CGCRI. They are progressing successfully at CGCRI. Beside several projects and few new areas of research has been started. Many Industries are brought in for collaboration and their funded projects such as Tata steel, Saint-Gobain, Allengers, CUMI etc. Different Government agency projects were also started which were not much at CGCRI, such as Meity, MOES, ICMR, DBT, textile ministry, Railways beside different ongoing and newer projects started with DAE, DRDO, ISRO.**

## Appendix-1

### A. List of patents taken: 15 ( 9 granted 6 filed)

1. “SHS processing of ZrB<sub>2</sub>. Powder”-S.K. Mishra, S. Das, R.P. Goel, RamachandraRao
  - a. US patent ( US 6908599)
  - b. European countries ( EP 20-03-2003)
  - c. Japan patent ( JP 20-03-2003) is filed,
  - d. Indian patent sealed. 2129/DEL/97.
  
2. “Process on Alumina- Boride composite-S. K.Mishra, Vladmir Shcherbakov”.
  - a. US patent ( 0238NF2003) Granted
  - b. Indian patent filed (1654/DEL/) 2004 granted
  
3. Fabrication of tailored hardness nano-composite coating with low coefficient of friction, 0770DEL2010, Granted
  
4. Development of Zn-Ni-Cu coatings on CRM sheets for anti bacterial and fuel tank applications., **jointly with Tatasteel**, 1401/KOL/2012. Granted.
  
5. An improved process for the production of zirconium boride and titanium boride powder by single step carbothermal process, 0151NF2015
  
- 6 Corrosion resistant and low embrittlement aluminum alloy coatings on steel by magnetron sputtering.
  - a. US 2018 0355470 A1 **Boeing USA jointly with NML**, 2016,
  - b. 2018 (**US and European patent filed**)
  
- 7 . S Gaydos, Ijeri Vijaykumar, Om Prakash, Suman Mishra, R. Singh, S.Paswan,L.C. Pathak, US Patent 10,577,686
  
8. Hot-dip Al-Si-Mg-Cu-Sc coatings on steel sheet with excellent in corrosion resistance as well as hot forming application and process for the production thereof, jointly with Tatasteel **2018, PAT-0531/2018/IN**
  
- 9.** Corrosion resistant and low embrittlement aluminum alloy coatings on steel by magnetron sputtering, Stephen P Gaydos, Vijaykumar S Ijeri, Om Prakash, Suman K Mishra, Raghuvir Singh, Sharma Paswan, Lokesh C Pathak, Publication date 2020/7/2, US16803797

10. Organic/inorganic composite Self -healing anticorrosive coatings and a process for preparation thereof. AK. Mohanty and S.K.Mishra, 20211100215.

### B. Publications

No of technical paper published: 223

- **Peer review journal:** 125,
- **conference :**91,
- **Book chapter:** 7, One is in CRC hand book Taylor & Francis,

### Review Paper : 4

1, L. C. Pathak, S. K. Mishra, **Synthesis of YBCO powder – A review, Superconducting Sci & Technol. 18, R67-R89, 2005.** This review is considered as most downloaded and important 3 top IOP journals.

2. S. K. Mishra, L. C Pathak **SHS synthesis of Adnavanced high temperature Ceramics; a review** (invited) [sp issue on high temperature materials] **Key Engineering Material**, 2008

3. S.K.Mishra, **Nano and nanocomposite coatings of silicon carbonitride and titanium diboride**, invited, **Int j. Applied ceramic Technology**, 6(3),345-354,2009.

4. S.K.Mishra, **Toughening of nanocomposite hard coatings, Reviews on Advanced Materials Science 59 (1), 553-585, 2020**

### Details of Books published, if any: chapters appeared in books :7 Nos.

SN	Chapter author	Title	Book name and publishers	Editors
7	S. K. Mishra, A. S. Bhattacharyya	Adhesion and Indentation Fracture Behavior of Silicon Carbonitride Nanocomposite Coatings Deposited by Magnetron Sputtering, S. K. Mishra, A. S. Bhattacharyya, 215-241	<b>Springer Series in Materials Science Volume 187 2013 Silicon-based Nanomaterials</b>	Handong Li, Jiang Wu, Zhiming M. Wang
6	S. K. Mishra	Chapter 3: " Laser cladding and alloying for aerospace applications" Pages: 109-150, 2012,	<b>Aerospace Materials Handbook" 2012, CRC press (Taylor and Francis group)</b>	S. Zhang & D. Zhao
5	S. K. Mishra	Nano and fine processing of high temperature	<b>Powder Metallurgy, New age Int. Ltd</b>	P. Ramakrishnan



		ceramics and in-situ composite by SHS process	<b>Publishers, 2007</b>	
4	S. K. Mishra and L. C. Pathak	SHS synthesis of advanced high temperature material	Advanced Materials, <b>Allied publishers, 2003</b>	L. C. Pathak, K, Venkateswarlu, A. Badhopadhyaya, a. K. ray
3	S. K. Mishra	Advanced techniques for surface engineering of industrial material	Resurgence of metallic materials the current scenario, Institute of Engineers, India (NML proceeding)	N.R. Bandopadhyaya, T.K. roy, R. N. ghosh, D. K. Bhattacharya, S. K. Narang, C. S. Sivramakrishnan, S. Ghosh
2	S. K. Mishra, P. Ramachandrarao	Synthesis and sintering of Zirconium diborides	Refractories and furnaces: New options and new values, <b>Allied publishers, 2000</b>	G. Ganguly, S. K. Das, S. K. Das, H. S. Tripathi
1	L. C. Pathak, S. K. Mishra, S. Srikanth	Effect of silver on sintering of high Tc superconductors	Composites, 1998, NML (Proceeding)	R.R. Bhat, s. ghosh, CS sivramakrishnan

**Complete list of publications in standard refereed journals: 124(published 121: rest in review)**

Sl. No.	Authors	Title	<i>Journal Reference</i>	
124	K Singh, P. Dubey, S. Bagchi, S.K.Mishra	Effect of Zn doping in thermoelectric SnSe thin film deposited by Thermal Evaporation and Sputtering: a comparative study	J materil. Chemistry A, in review	2024
123	Soni, S.K. Sharma, S.K. Mishra	Hydrophobicity and High-temperature mechanical behaviour of Hard and Optically transparent Nanocomposite Al-Si-N thin films	J of Coating Technology & Research, in review	2024
122	K. Singh P.Dubey; S. Anwar, K.C. Bhamu; S. G. Kang; B. L.	Electronic structure and thermoelectric response of n-type Bi doped SnSe	Materials chemistry and physics, in review	2024

	Ahuja; S. K. Mishra			
121	A. Acharya, B.Chanda, M. Saminathan, S. Perumal, K.Jayanthi, K. Annapurna, N. M. Anoop Krishnan, B. Gahtori, M. K. Naskar, S.Ghosh, A. R. Allu, S. K. Mishra	Influence of metal organic framework glasses on thermoelectric properties of AgSb <sub>0.96</sub> Zn <sub>0.04</sub> Te <sub>2</sub> alloy	J of Non crystalline solids, 627, 122816	2024
120	K Singh, S Anwar, P Dubey, SK Mishra	Enhanced thermoelectric performance of mechanically hard nano-crystalline-sputtered SnSe thin film compared to the bulk of SnSe	Journal of Materials Science: Electronics in (13), 1115	2023
119	Komal Singh,	Facile Synthesis and Enhancement of Thermoelectric Performance of Bulk Polycrystalline SnSe by Zn-Doping and Voltage Generation from Single-Leg Prototype	ACS Applied Engineering Materials 1 (11), 2954-2964	2023
118	Abinash Kumar, Soni, S.K.Mishra	Al-Cr-Si-N hard coatings by Magnetron sputtering: structure and mechanical behavior with substrate temperature	Thin solid films In review	2023
117	Soni, S.K. Sharma, S.K. Mishra	Hydrophobicity and High-temperature mechanical behaviour of Hard and Optically transparent Nanocomposite Al-Si-N thin films	Surface and Interface analysis, in review	2023
116	P Mahato, M Murmu, P Banerjee, SK Mishra	Magnetron sputtered films prepared from sintered Ti-based target and evaluation of tribological properties under the ball on disc condition with varying thickness and load	Journal of Adhesion Science and Technology 37 (8), 1345-1372	2023
115	K. Singh, P. Dubey, P. K. Joshi, B. L. Choudhary, G. Arora, B. L. Ahuja, K. Kumar, and S. K. Mishra	Experimental and Theoretical Divulging of Electronic Structure and Optical Properties of Zn-Doped SnSe Thermoelectric Material	Materials Science in semiconductor processing, 156 (2023) 107301.	2023

114	Abhishek Pandey, Soni, S. Paswan, S.K.Mishra	Mechanical, structural and oxidation behaviour of Ultra High-Temperature Ceramic Ti-B-Si hard composite	Mat. Sci. Eng. A, 861,144378	2022
113	A.Bose, Soni K.Singh, P.Dubey, S.K.Mishra	Study of Dry Sliding Wear and Corrosion Behavior of Nanocomposite Al-Si-N Coated Steel	Surface and coating Technology, 441, 128543	2022
112	Komal Singh, S. Anwar, P. Dubey, S.K.Mishra	Influence of temperatures on structure, thermoelectric, and mechanical properties of nanocrystalline SnSe thin films deposited by thermal evaporation	Materials Today Communications 32, 103880	2022
111	MG Walunj, GK Mandal, RK Ranjan, R Pais, SK Mishra, T Venugopalan	Role of dew points and Fe pre-coats on the galvanizing and galvannealing of dual phase steel , ...	Surface and Coatings Technology, 422, 127573	2021
110	P Mahato, P. Banerjee, N.C. Murmu, Suman K Mishra	Investigation on multifunctional properties of sputtered Ti-Si-B-C coating with varied thickness over targeted surface	Journal of Materials Engineering and Performance, 1-13,	2021
109	GK Mandal, M Dutta, Tipu Kumar, Avik Mondal, MG Walunj, SK Mishra, SK Das, R Pais, LC Pathak	Formation and growth of iron-zinc intermetallics during annealing treatment of galvanized steel	Journal of Metallurgy and Materials Science, 66, 1-2, 37-60	2020
108	Soni, S. K. Mishra	Strain rate sensitivity behaviour of Al metal, Al-Si metal alloy and Al-Si-N nanocomposite thin films: A comparative study	Materials Characterisation, 169, 110589	2020
107	S.K. Mishra	Toughening of nanocomposite hard coatings	Reviews on Advanced Materials Science 59 (1), 553-585	2020

106	P. Verma, S.K.Mishra	Synthesis of iron boride powder by carbothermic reduction method	Materials Today: proceedings	2020
105	Soni, S.K.Sharma, S.K.Mishra	The effect of Si content on Structural, mechanical and optical behavior of magnetron sputtered Al-Si-N nanocomposite thin films	J. alloy and compounds, 831 August (2020) 154686 -154695	2020
104	A Shukla, B. Shivakumar, S.K.Mishra	Corrosion behavior of Ti-Si-B-C nanocomposites hard coating with different Si content on 4130 steel	Metallurgical and Materials Transaction A, vol 51 A, 2576-3586	2020
103	P. Mahato, S.K.Mishra, N. Murmu, N.C. Murmu, H. Hirani, P. Bannerjee	A prolonged exposure of Ti-Si-B-C nanocomposite coating in 3.5 wt% NaCl solution: Electrochemical and morphological analysis	Surface and coating Technology ,375, 477-488	2019
102	Bharat Verma, S.K.Mishra	Spectral and structural characterisation of low temperature layered growth of graphene by magnetron sputtering	Applied Physics A, <b>125, (8) 534</b>	2019
101	Soni, S.K. Sharma, S.K. Mishra	Influence of Nitrogen partial pressure on optical properties of magnetron sputtered Al-Si-N Thin films	Thin Solid Films, <b>Volume 682</b> , 31 July 2019, Pages 1-9	2019
100	Divya Verma, D.Banerjee, S. K. Mishra*	The effect of Silicon content on the microstructure and mechanical properties of Ti-Si-B-C Nanocomposite hard coatings.	Metallurgical and Materials Transaction A, 50 A, 894-904	2019
99	S.K. Mishra, S. Kumari, soni	Optically transparent hard coatings of Al-Si-N system by magnetron sputtering: effect of different sputtering parameters	Journal of Materials Engineering and Performance 27 (12), 6729-6736	2018
98	S.K. Mishra, Swati Kumari, Soni	Development of hard and optically transparent Al-Si-N nanocomposite coatings	Surface and interface analysis, 49 (4), 345-348	2017
97	S.K. Mishra, V.Kumar, S.K. Tewari, T.Mishra, A. Adhikari, G. angula	Development and degradation behavior of protective multilayer coatings for Aluminum reflectors for Solar thermal Applications	Thin Solid Films, 619, 202-207	2016

96	P. Mahato, R.J. Singh, S.K. Mishra	Nano composite Ti-Si-B-C hard coatings deposited by magnetron sputtering: oxidation and mechanical behaviour with duration and temperature of oxidation.	Surf. Coat. & technol. 288, 230-240	2016
95	P Mahato, RJ Singh, LC Pathak, SK Mishra	Effect of nitrogen on mechanical, oxidation and structural behaviour of Ti-Si-B-C-N nanocomposite hard coatings deposited by DC sputtering	Surface and Interface Analysis 48 (10), 1080-1089	2016
94	S.K. Mishra, N. Jagadeesh, L.C. Pathak	Fabrication of nano sized Lanthanum zirconate powder and deposition of thermal barrier coating by plasma spray process	J mat eng & performance. 25 (7), 2570-2575	2016
93	S.K. Mishra, P. Mahato, G. Nyati	Wear, fracture and scratch behavior of nanocomposite TiSiBC hardcoatings deposited by Magnetron sputtering.	J Mat. eng. & performance, 25(9)-3774-3782	2016
92	S. K. Mishra, V. Shcherbakov	In-Situ synthesis of Ti-Si-C fine grained composite with different amount of TiC: microstructure and mechanical properties	J of refractory and hard materials. 59, 19-25	2016
91	S. K. Mishra, Rakesh Kumar, soni, M. Srimany, L.C. pathak	Ultrathin to thick nano TiN coatings by Magnetron sputtering for RF window & other applications: processing, structural, mechanical behavior	J of mater' eng. Perform 24(12), 5013-5021	2015
90	Samir Bhatt, K. K. Suthar, Suman K. Mishra, and B. L. Ahuja	Compton profiles and electronic properties of TiB <sub>2</sub>	AIP proceeding <b>1665</b> , 090012 (2015); doi: 10.1063/1.4917992	2015
89	P K P Rupa, P. Chakroborty, S. K. Mishra	Structure and indentation behaviour of nanocomposite Ti-B-N films	Thin solid films <b>564, 160-169</b> ,	2014
88	R. Singh, M. Kumar, SK. Mishra	Laser cladding of Stellite 6 on stainless steel to enhance solid particle erosion and cavitation resistance"	Surface & coating Technology, <b>251, 87-97</b>	2014
87	S. K. Mishra, P shravankumar, S Bysakh, M. Srimany, L C Pathak	EBPVD Thermal barrier coatings of Laz/YSZ, microstructural and mechanical behaviour	Surface & interface analysis, accepted	2014

			46, 449-456	
86	S.Madge, A. Caron, S. K. Mishra	Novel W-based metallic glass with high hardness and wear resistance	Intermetallics, 47,6-10	2014
85	S. K. Mishra, A bhople, S. Paswan	Microstructure, hardness, toughness and oxidation resistance of Al <sub>2</sub> O <sub>3</sub> -ZrB <sub>2</sub> composite with different Ti percentages prepared by in-situ SHS dynamic compaction	Int. J. Refractories metals and hard materials, 43,7-12	2014
84	S. K. Mishra, V. Gokul, S. paswan	Alumina-titanium diboride in situ composite by self propagating high temperature synthesis (SHS) dynamic compaction: Effect of compaction pressure during synthesis	Int. J. Refractories metals and hard materials, 43,19-24	2014
83	S. K. Mishra, D. Verma, S Bysakh, L.C. pathak	Hard and Soft Multilayered SiCN Nanocoatings with High Hardness and Toughness	J nanomaterials., Volume 2013 (2013), Article ID 949416, 8 pages <a href="http://dx.doi.org/10.1155/2013/949416">http://dx.doi.org/10.1155/2013/949416</a>	2013
82	M.Kumar, R. Mitra, S. K. Mishra	Effect of substrate bias and annealing on the structure-property relationships of Ni-TiN, nanocomposite thin films deposited by reactive magnetron co-sputtering	Surface coating technology, 228,100-114	2013
81	S. K. Mishra, P mahto, L.C. Pathak	Thermal stability and effect of substrate temperature of TiSiBC hard nanocomposite coatings on microstructure, mechanical, thermal behavior deposited by magnetron sputtering	Applied surf. Sci, <b>266,209-213</b>	2013
80	L.C. Pathak, S. K. Mishra	Superhard coatings	Science and Culture, 78(12)557-562	2012
79	R. Singh, S k Tiwari, S. K. Mishra	Cladding of tungsten carbide and stellite using high power diode laser to improve the surface properties	Advanced Materials Research Vol. 585 pp 498-501	2012

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78	Raghuvir Singh, Mukesh Kumar, Deepak Kumar, and Suman K. Mishra	Erosion and corrosion behavior of laser cladded stainless steels with tungsten carbide	J. Material. Eng. & Performance, 21, 2274-2282.	2012
77	S. K. Mishra, S Pande Mahato, Sravankumar Bysakh, M. Sreemani, L. Pathak	Microstructural studies on electro deposited NiCrAlY, YSZ Lanthanum Zirconate for thermal applications	Surface coating & technol. 207,143-148	2012
76	Suman Mishra, A Bhattacharyya, P Mahato, and Lokesh Pathak	"Multicomponent Ti-Si-B-C super-hard and tough nanocomposite coatings by magnetron sputtering" by	Surf coat technol, 07,19-23	2012
75	S. K. Mishra, P. K. P. Rupa, A. S. Bhattacharya, L. C. Pathak	XPS studies on magnetron sputtered nano SiCN hard thin films,	J Nanoscience and Nanotechnology Letters,4, 352-357,	2012
74	R. Singh, S.K.Tiwari, S. K. Mishra	Cavitation Erosion in Hydraulic Turbine Components and Mitigation by Coatings: Current Status and Future Needs	J. Material. Eng. & Performance, 21(7),1539-1551	2012
73	S. K. Mishra, S. Sen, P. Mohanta, L. C. Pathak	Effect of nitrogen on structural, microstructural and mechanical properties of carbon nitride film grown by PECVD	J Nanoscience and Nanotechnology Letters, 4,90-94	2012
72	P. Karuna Purnapu Rupa, P. C. Chakraborti, Suman.K.Mishra	Indentation Response and Contact Damage of Hard T-B-N Films Deposited by Magnetron Sputtering	Eurasian Chemico-Technological Journal Volume 13, Number 1-2, 81-84	2011
71	Raghuvir Singh • S. K. Tiwari • Suman K. Mishra • Narendra B. Dahotre	Electrochemical and mechanical behavior of laser processed Ti-6Al-4V surface in Ringer's physiological solution	J Mater Sci: Mater Med (2011) 22:1787-1796	2011
70	P. Karuna Purnapu Rupa, P. C. Chakraborty, and Suman Kumari Mishra	Nanoindentation Studies Of Hard Nanocomposite TiBN Thin Films	American Institute of physics Proceed;1393, 239.	2011
69	S. K. Mishra, Khoosboo, V sherbakov	Fabrication of in-situ Ti-Si-C fine grained composite by the self	Int j. Hard and refractory	2011

		propagating high temperature synthesis (SHS) process	material, 29 (2),209	
68	A.S Bhattacharyya, S. K. Mishra	Micro-nanomechanical behavior of magnetron sputtered Si-C-N coatings through nanoindentation and scratch tests	J of micromechanics and microengineering, 21, 1,015011	2011
67	A. S. Bhattacharyya, S. K. Mishra	Raman studies on nanocomposite silicon carbonitride thin film deposited by RF magnetron sputtering at different substrate temperature	J. Raman spectroscopy 41,1234-1239	2010
66	A.S.Bhattacharyya,S.Mukherjee, S. K. Mishra	Correlation of mechanical, structure of Silicon carbonitride coatings deposited at different processing condition by magnetron sputtering	J. Vac. Sci & Technol A <b>28</b> , 505 (2010)	2010
65	A.S.Bhattacharyya,S.Mukherjee, S. K. Mishra	The effects of substrate temperature on the microstructure of thin film Si-C-N coatings deposited by RF magnetron sputtering	European coatings journals, issue 3,108-114	2009
64	S. K. Mishra, L. C Pathak	SHS synthesis of Advanced high temperature Ceramics; a review (invited) [ <b>sp issue on high temperature materials</b> ]	Key Engineering Material , 395, 15	2009
63	A. S. Bhattacharyya, S.P.Mukherji, G. C. Das, s. K. Mishra	A comparative study of Si-C-N films on different substrates grown by RF magnetron sputtering	J. alloy and compounds 478,474	2009
62	P. K. P. Rupa, S. K. Mishra,	Mechanical and deformation behaviour of TiB <sub>2</sub> thin films deposited by magnetron sputtering	Thin Solid films, 517,, pp. 2912-2919	2009
61	S. K. Mishra	Nano and nano-composite super hard coatings of silicon carbonitride and titanium diboride by Magnetron sputtering ( <b>invited</b> )	International. J.Appl. Ceram. Technol. 6(3),345-354	2009
60	A. S. Bhattacharyya, S. K. Mishra	Effect of radio frequency and direct current mode of deposition on protective metallurgical hard silicon carbon nitride coatings by	Vacuum, 83, 1464-1469	2009



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59	S.Sen and S.K.Mishra	Dielectric and conductivities studies on PMN-PT-PVDF nanocomposite	J. of physics D, 41, 165305	2008
58	A. S. Bhattacharya, S. K. Mishra	Effect of substrate temperature on the adhesion properties of magnetron sputtered nano-composite Si-C-N hard thin films	Materials Letter, 62,398	2008
57	S.Sen, S. K. Mishra, S.sagar, S. K. Das	"Preparation and characterization of PMN-PT nanocomposite",	Ind. J. eng and material science , 15(2),111	2008
56	Suman Kumari Mishra and Arnav Shankar Bhattacharya,	Effect of substrate temperature on the Adhesion properties of magnetron sputtered Nanocomposite Si-C-N hard thin films	Materials Letter,62(3), 398-402	2008
55	S. K. Mishra, S. K. Das, L. C. Pathak	Effect of C and Ti C on sintering of ZrB <sub>2</sub> Powder prepared by SHS, Carbothermic and imported routes	J. Alloy and compounds,465,547	2008
54	S. Sen, S.K. Das S.K. Mishra and A.Tarafdar,	Low temperature synthesis of 0.65 PbMg <sub>1/3</sub> Nb <sub>2/3</sub> O <sub>3</sub> -0.35PbTiO <sub>3</sub> ceramics	J. Am. Ceram. Soc., 90(8), 2634-2638	2007
53	S.Sen, S.K Das, S.K. Mishra, S.Palit Sagar, A.Tarafdar	Impedance analysis of 0.65Pb(Mg <sub>1/3</sub> Nb <sub>2/3</sub> )O <sub>3</sub> -0.35PbTiO <sub>3</sub>	Journal of Alloys and Compounds, 395-400	2007
52	S. K. Mishra, L. C. Pathak, V. Shcherbakov,	Fabrication of Al <sub>2</sub> O <sub>3</sub> -ZrB <sub>2</sub> in-situ composite by SHS dynamic compaction: a novel approach	Compo. Sci. Technol. 67(11-12),2447-2453	2007
51	A. Mukhopadhaya, B. Basu, S. K. Mishra, J. refractory and hard materials	Pressureless sintering of ZrO <sub>2</sub> -ZrB <sub>2</sub> Composites:Microstructure and properties	25(2), 179-188	2007
50	S.K.Mishra, K.P.K.Rupa, C.Sekhar and L.C.Pathak	Effect of deposition parameters and substrate temperature on Si-C-N films by magnetron puttering	Thin Solid Film 515(11), 4738-4744s	2007
49	S.K.Mishra, K.P.K.Rupa, L.C.Pathak	Surface and Nano-indentation studies on nanocrystalline TiB <sub>2</sub> thin film by magnetron sputtering	Thin solid films, 515 (17),6884-6889	2007
48	S. K. Mishra, P.K. P.	Effect of titanium diluent on the	Compos. Sci.	2007

	Rupa, S. K. Das, V. Shcherbokov	fabrication of Al <sub>2</sub> O <sub>3</sub> -ZrB <sub>2</sub> composite by SHS dynamic compaction	Technol. 67(7-8) 1734-1739	
47	S. Das Bakshi, B. Basu, S. K. Mishra,	Microstructure and mechanical properties sinter-Hiped ZrO <sub>2</sub> -ZrB <sub>2</sub> ceramics	composite A:;37,11, ,2128-2135	2006
46	S. Das Bakshi, B. Basu, S. K. Mishra,	Fretting wear properties of sinter HIPED ZrO <sub>2</sub> -ZrB <sub>2</sub> composite	composite A: Applied Science & Manufacturing37, 10, 1652-1659	2006
45	S.K.Mishra, H.Gaur, K.P.K. Rupa and L.C.Pathak	Deposition of nano-structured Si-C-N superhard coatings by RF magnetron sputtering	J. Vac. Sci. Technol. B 24(3) 1311	2006
44	S.K.Mishra, S. K. Das L.C.Pathak	Sintering studies on ZrB <sub>2</sub> -Al <sub>2</sub> O <sub>3</sub> composites prepared by SHS technique	Mater. Sci. Engg. A 426 229	2006
43	S. K. Mishra, P.K. P. Rupa, S. K. Das, V. Shcherbokov	Effect of alumina diluent on the fabrication of Alumina-boride - composite by SHS dynamic compaction	Metall. Mater. Trans. B, 37 b, 641	2006
42	S.K.Mishra, K.P.K.Rupa and L.C.Pathak	Nucleation and growth behaviour of TiB <sub>2</sub> thin films deposited by RF sputtering unit	Surf. Coat.. Technol. 200 4078	2006
41	A.K.Khanra, L.C.Pathak, S.K. Mishra and M.M.Godkhindi	Sintering of ultrafine Zirconium diboride powder prepared by a modified SHS technique	Adv. Appl. Ceram. 104 282	2005
40	S.K.Mishra and L.C.Pathak	Fabrication of C <sub>3</sub> N <sub>4</sub> thin films by ARC evaporation technique	Mater. Lett. 59 3481	2005
39	L.C.Pathak and S.K.Mishra	A review on Synthesis of Y-Ba-Cu-oxide powder : Topical Review	Supercond. Sci. Technol. 18 R67-R89	2005
38	S. K. Mishra and S. K. Das	Sintering and microstructural behaviour of SHS produced zirconium diboride powder with the addition of C and TiC	Mater. Lett., 59, 3467	2005
37	S.K.Mishra and L.C.Pathak	Self-propagating High-temperature synthesis of advanced materials	J. Metals Mater. Processes vol.16,2-3, 247, 2004.	2004
36	L.C.Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra	Synthesis and sintering characteristics of YBCO superconductors	Mater. Sci. Engg. B 110(2) 119-131	2004
35	S.K.Mishra, S.Das and L.C.Pathak	Defect structure in ZrB <sub>2</sub> powders prepared by self-propagating high-temperature synthesis route	Mater. Sci. Engg. A 364 (1-2) 249-255	2004

34	A. Khanra, L.C.Pathak, S.K.Mishra, M.M.Godkhindi	Effect of NaCl on the synthesis of TiB <sub>2</sub> powder by a self-propagating high-temperature (SHS) technique	Materials Letters 58(5) 733-738	2004
33	S. K.Mishra, S. K. Das, P. Ramachandrarao, D. Belov, S. S. Mamyán	SHS synthesis of Zirconium Diboride- Alumina composite- A dynamic Xray study and phase evolution	Phil. Mag. Lett, 84,1,41-46	2004
32	A. Khanra, L.C.Pathak, S.K.Mishra, M.M.Godkhindi	Effect of NaCl on the synthesis of ZrB <sub>2</sub> powder by a self-propagating high-temperature (SHS) technique	J. Mater. Sci. Letters 22, 1189	2003
31	S. K. Mishra(Pathak), S.K.Das, P.Ramachandra Rao,D.Belov, .S.Mamyán,	Synthesis of Zirconium Diboride – Alumina composite by SHS Process	Mater. Trans. A, 34, 1973	2003
30	L.C.Pathak and S.K. Mishra(Pathak), , “	Synthesis of YBCO Powder”-A Review	Advances in Condensed Matter and Materials Research, Volume 4 –Nova Publishers	2002
29	S. K.Mishra, S. Das, P. Ramachandrarao	Microstructure evolution during sintering of SHS produced ZrB <sub>2</sub> powder	J. Mater. Res. 17,11, 2809-2814	2002
28	L.C.Pathak, S.K.Mishra (Pathak) and S.Srikanth	Effect of sintering atmosphere on the sintering characteristics of YBCO-Ag <sub>x</sub> superconductors	J. Mater. Res. 17 (4) 895	2002
27	S.K.Mishra(Pathak), S.Das, S.Ranganathan	TEM study on HSLA Steel	Mat. Sci. Eng. A, vol. 323/1-2, 285-292,.	2002
26	S.K.Mishra(Pathak), S.K.Das, A.K.Ray and P.Ramchandrarao.	Effect of Fe and cr addition on sintering behaviour of ZrB <sub>2</sub> prepared by SHS process	J.Am.Cerm. Soc., 85,11, 2846-1848,	2002.
25	L.C.Pathak, S.K.Mishra(Pathak), S.K.Das, D.Bhattacharya and K.L.Chopra	Effect of sintering atmosphere on the weak-link behaviour of YBCO superconductors	Physica C, 351, 295-300	2001
24	P.Ramchandrarao and S.K.Mishra-,	Zirconium Diboride synthesis and sintering- Refractories & furnaces- New options and new values	31-39, Published by Allied publishers	2000.
23	S.K.Mishra(Pathak), S.Das, S.K.Das and P.Ramachandrarao	Pressureless sintering of ultrafine ZrB <sub>2</sub> powder produced by SHS process	J.Mater. Res. vol. 15(11),2499	2000
22	L.C.Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra	Sintering characterstics of submicrometre sized SrTiO <sub>3</sub> powder prepared by co-precipitation process	Trans. Mater. Res. Jpn. 24(4) 525	1999

21	L.C.Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra	Synthesis and sintering characteristics of YBCO-Ag superconductors	J. Mater. Res. 14 4148	1999
20	L.C. Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra	Degradation of BPSCCO superconductors during processing	J. Mater. Sci. 34 1619	1999
19	G.Das, A.N.Sinha, S.K. Mishra(Pathak) and D. K. Bhattacharya	Failure Investigation of counter shafts of a centrifugal pump	J. Engg. Failure Anal. 6,267	1999
18	S.K.Mishra(Pathak), S.K.Das, A.Roy and P.Ramchandrarao	Effect of nickel on sintering of SHS produced titanium carbide	J. Mater. Res. Vol.14,9, 3594	1999
17	S.K.Mishra(Pathak), S. Ranganathan, S.K.Das and S.Das	Investigations of precipitation behaviour in high strength low alloy (HSLA) Steel	Scripta Materilia, 39, 2,253,	1998
16	L.C.Pathak, S.K.Mishra, D.Bhattacharya, A.Dhar and K.L.Chopra	Effect of laser annealing on Y-Ba-Cu-oxide superconductors	Mater. Res. Bull. 32 p619-625	1997
15	S.K.Mishra, L.C.Pathak and V.Rao	Synthesis of submicron Ba-hexaferrite powder by a self-propagating chemical decomposition process,	Mater. Lett. 32 p 137-141	1997
14	L.C.Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra	A comparative study of YBCO Powders prepared by different processes	J. Mater. Sci. Lett. 16 p1208-1211	1997
13	S.K.Mishra(Pathak), S.Das, R.P.Goel and P.Ramachandrarao,	Self Propagating High Temperature synthesis (SHS) of titanium Carbide,	J.Mater.Sci. 16 965-967	1997
12	S.K.Mishra, L.C.Pathak, V.Rao, D.Bhattacharya and K.L.Chopra	Studies on microbridges of superconducting YBCO thin film	J. Supercond. 9 p219-p224	1996
11	L.C.Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra	Fabrication and characterisation of Y-Ba-Cu-oxide whisker	Mater. Res. Bull. 31p1-6	1996
10	L.C.Pathak, S.K.Mishra, D.Bhattacharya and K.L.Chopra,	Fabrication of YBa <sub>2</sub> Cu <sub>3</sub> O <sub>x</sub> single crystal	J. Mater. Sci. Lett. 15 p34-35	1996
9	S.K.Ray, S.K.Mishra, A. Sarkar, A.Dhar, D. Bhattacharya and K.L Chopra,	Molecular Beam Epitaxial growth of high Tc Bi-Sr-Ca-Cu-O film,	J. Superconduc. ,8 (3) , 377-381	1995
8	L.C.Pathak, S.K.Mishra, P.G.Mukunda, M.M.Godkhindi, D.Bhattacharya and K.L.Chopra,	Sintering studies on submicrometre sized Y-Ba-Cu-oxide powder	J. Mater. Sci. 29 p5455-5461	1994

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6	S.K.Mishra, A.Sarkar, S.K.Ray, L.C.Pathak, D.Bhattacharya, K.L.Chopra and S.R.Das	Langmuir probe diagnostics of a radio frequency magnetron discharge for deposition of high $T_c$ YBCO films	J. Vac. Sci. Technol. A 11 p2747-2751 & Errata 12 (1994) p603	1993
5	S.K.Mishra, L.C.Pathak, M.V.H.Rao, D.Bhattacharya and K.L.Chopra	Dependence of the properties of rf magnetron sputtered superconducting films on plasma parameters	Ind. J. Pure Appl. Phys. 30 p685-691	1992
4	V.Vasudeva Rao, S.K.Mishra, L.C.Pathak, R.Subramaniam	Video detection of microwaves using high $T_c$ Y-Ba-Cu-O thin films	J. Supercond. 5 p29-32	1992
3	S.K.Mshra, L.C.Pathak, S.K.Ray, S.Kal, D.Bhattacharya, S.K.Lahiri, and K.L.Chopra	Lithographic patterning of superconducting YBCO films	J. Supercond. 5 p445-449	1992
2	D.Bhattacharya, D.K.Pandya, S.C.Kasyap, L.C.Pathak, S.Mishra, D.Sen and K.L.Chopra,	Lattice and electronic structure of YBa <sub>2</sub> Cu <sub>2</sub> PbO <sub>x</sub> superconductor,	Physica C 170 p245-248	1990
1	D. Bhattacharya, L.C.Pathak, S.K.Mshra, D.Sen and K.L.Chopra	Pyrophoric synthesis technique for multicomponent high-temperature superconductors	Appl. Phys. Lett.57 p2145-2147	1990

**List of publications/abstracts in symposia and conferences: 91**

91	S.K.Mishra, Invited	2024	My journey and the contribution of women Nobel laureate and their struggles	<b>IWD-IISC, March 2024</b>
90	S.K.Mishra, Invited	2024	Women Noble Laureate in Science : Their contributions and struggle	<b>IWD-CGCRI, March 2024</b>
89	S.K.Mishra, Invited	2024	Biomaterials, Ceramic composite, Functional and Energy Materials research at CGCRI.	<b>Indo-Bangladesh conference at Chennai, Feb 2024</b>
88	S.K.Mishra, Invited	2024	Coatings for industrial components for corrosion, wear	<b>Powder Metallurgy</b>

			resistance and functional applications	<b>association of India, PMAI, Pune, Feb 2024</b>
87	S K Mishra, Invited	2022	Optical fiber and its applications: R&D and technology at CSIR-CGCRI	<b>Indian Ceramic society, at BHU Varanasi, December 2022</b>
86	S K Mishra, Invited	2022	Hard and tough coatings	<b>NMD 2022, At hyderabad</b>
85	S K Mishra, Invited	2022	Specialty Glass: Research and Development at CSIR-CGCRI	<b>International Conference on Advances in Glass and Glass-Ceramics ICAGGC 2022, Aug 2022</b>
84	S K Mishra, invited	2022	Development of Industrial coatings by surface engineering	<b>11<sup>th</sup> Professor S.P.Sengupta Memorial Lecture, MRSI Kolkata chapter, July 2022</b>
83	S K Mishra, Invited	2022	Carbon foot-print reduction: Role of ceramics	Indian Institute of Ceramics, JSR chapter, April 2022
82	S.K. Mishra, invited	2021	Glass science and society	<b>MNPS school Jsr, ATAL tinkering lecture, Sept 2021</b>
81	S K Mishra, invited	2021	Coatings for Industrial applications	Student colloquium, Mat material sdepartment IISc banglore, March 2021
80	S.K.Mishra	2020	Microstructure and mechanical behavior correlation of nanocimposite coatings	International conference, 12 <sup>th</sup> Asia pacific electron microscopy conference at Hyderabad, India, Feb 2020, APMC

				2020.
79	S.K.Mishra	2020	Innovation in Science Education	NASI seminar at Jharkhand womens colege
78	S. K. Mishra	2019	Synthesis and sintering of borides and composite by innovative processes	ADMAT-2019, Int. conf on materials for defence held at Hyderabad by DMRL.
77	S.K. Mishra	2019	Thermal Barrier coatings	TEQIP workshop on surface engineering & composite materials, May 2019
76	S.K. Mishra	2019	Hard nanocomposite coatings	TEQIP workshop on Materials,Manufacturing and modeling: advances and constraints, NIT Jamshedpur, May 2019
75	S.K. Mishra	2019	Surface Engineering	TEQIP workshop on surface engineering & composite materials, May 2019
74	S.K. Mishra,invited	2018	Corrosion and wear coating on steel research at NML.	Proceeding , Int. Conf. ASIA Steel Feb 2018
73	S.K. Mishra,invited	2017	Alternative coatings on steel	<b>National workshop on HDGS 2017-August 2017</b>
72	S.K. Mishra, Invited	2016	Multilayer coatings for solar thermal applications	NMD - ATM 2016 at IIT Kanpur, organised by Indian Institute of Metals

71	S. K. Mishra, invited	2016	Surface engineering for corrosion and wear protection	Industrial HIGH technical manager training at Jamshedpur, May 2016
70	S. K. Mishra, invited	2016	Nanocomposite hard coatings for engines	INDO-US workshop and discussion meeting in coatings at Koor, organised by IIT Mumbai and IISc Bangalore, March 2016
69	S. K. Mishra, invited	2015	Surface engineering at NML	International Seminar on surface engineering, SSPC at greater Noida Oct 2015
68	P. Mahto, S. K. Mishra	2013	Nanocomposite TiSiBC coating for hard, tough and high temperature application	Indian Ceramic Society, Annual conference
67	P. Mahato, S. K. Mishra	2013	Oxidation behaviour of Nanocomposite coating	NMD 2013, at BHU, India
66	S K Mishra, L. C. Pathak	2013	Multilayered Thermal barrier coatings	AEROMAT , USA Seattle, organised by ASM International
65	S. K. Mishra, inv	2013	Wear and Oxidation resistance coatings for thermal power plants	NTPC, power management Institute, Jan 2013
64	S. K. Mishra, Inv	2012	Deposition, deformation and mechanical behavior of hard and tough nano-composite thin films by Magnetron sputtering	National Seminar on nanotechnology, Raigarh, Aug 2012
63	S. K. Mishra, Inv.	2012	Deformation and mechanical behavior of hard and tough nano-composite thin films by Nanoindentation.	Nanoindentation seminar by Agilent USA, and Tosniwal and others at Delhi July 2012
62	S.K. Mishra, Inv.	2012	Hard yet tough coatings for wear & oxidation resistance and high temperature	Diamond Jubilee Seminar at IIT Kharagpur Jan



			applications	2012
61	S. K. Mishra, P.Mahato,L.C. Pathak	2011	Effect of substrate temperature on Ti-Si-B-C super-hard Nanocomposite Coatings deposited by RF/DC magnetron sputtering	NMD 2011
60	S. K. Mishra	2011	Hard coatings of TiB <sub>2</sub> , TiB-N, Ti-Si-B-C-N for wear & oxidation resistance and high temperature applications	NMD 2011
59	P.K. P.rupa, P.C. Chakraborty,S.K. Mishra	2011	Indentation response and contact damage of hard Ti-B-N films deposited by magnetron sputtering	International Symposium on Advanced Ceramics, Composites and Nanostructured Materials (ISACCNM-2011), Vidya nagar
58	P.K. P. Rupa, P.Chakraworti, S. K. Mishra	2011	Nanoindentation Studies Of Hard Nanocomposite TiBN Thin Films	Int. Conf ICACNM-2011, Chandigarh
57	S. K. Mishra (Inv.speaker)	2011	Materials for future technology	IIM Kolkota
56	S. K. Mishra (Inv.speaker)	2011	Deposition of hard silicon carbonitride (SiCN) nanocomposite and multilayered thin films by Magnetron sputtering	Int. Conf on Avanced Materials, Singapore
55	S. K. Mishra (inv speaker)	2011	Nanocomposite by shs process	Int. conf ISME at Pune
54	S. K. Mishra , do	2011	Nanocomposite coatings for autiomobiles	ASM int. conf at Mumbai
53	S. K. Mishra, do	2011	Mechanical properties of small volume and thin films by nanoindentation	Jadavpur university metallix 2011
52	P. Mahato,S. K. Mishra, L.C Pathak.	2010	TiSiBC nanocomposite film with very low coefficient of friction	NMD 2010, Bangalore
51	S. K. Mishra do	2010	Deformation and Mechanical behaviour of hard	Jadavpur University,

			nanocomposite thin films	seminar on “Wear, deformation, mevhanical behaviour of materials” March 2009
50	S. K. Mishra	2009	Fine and nano borides and its composite by SHS process	University of Central Florida, USA as invited speaker in workshop on “Boron rich solids”, arranged by UCF and NASA, Dec 2009
49	S. K. Mishra, do	2009	Nanocomposite hard coatings for industrial application	Workshop on surface engineering, at PUNE, Jan 2009
48	S. K. Mishra	2008	SHS synthesis of advanced ceramics	Seminar at NPL on advanced processing
47	P.K. P Rupa, L. C. pathak, S. K. Mishra	2008	Mechanical Behaviour of Nanocomposite TiB <sub>2</sub> coatings	Int. Conf. Singapore, THIN FILM 2008
46	A. S. Bhattacharya, L. C. Pathak, S. K. Mishra	2008	Nanocomposite SiCN coatings by magnetron sputtering	Int. Conf at Singapore, Thin film July 2008
45	A. S. Bhattacharya, S. K. Mishra	2008	Nano composite SiCN hardcoatings, a cooperasion of RF Dc deposition	Int. seminar, on nano materials (ICONSAT), Chennai 2008
44	A. S. Bhattacharya, S. K. Mishra	2008	SiCN coatings on steel substrate	Int. seminar, coated steel, convenor Tata steel
43	A. S. Bhattacharya, PKP Rupa, S. K. Mishra	2007	Adhesion and mechanical properties of nanostructured SiCN thin film	NSNT-2007
42	S. K. Mishra, Inv. Talk	2007	Deposition and mechanical properties of nanostructured thin films	MRSI seminar at Lucknow Univ. March 2007
41	S. K. Mishra-Inv. Talk	2007	Mechanical properties of thin films	Seminar on “deformation &

				damage of materials” Jan 2007 Jadavpur Univ.
40	S. K. Mishra	2007	Nano composite SiCN thin film by magnetron sputtering for wear resistance and functional applications	NSTI-2007, Hyderabad
39	A. S. Bhattacharya, S. K. Mishra	2006	Effect of substrate temperature and adhesion studies on SiCN Nano-composite thin film	NMD 2006
38	A. S. Bhattacharya, PKP Rupa, L. C. Pathak, S. K. Mishra,	2006	Effect of substrate temperature on nano-composite SiCN thins by magnetron sputtering	ICRNT 2006
37	P. K. P. Rupa, L. C. Pathak, S. K. Mishra	2006	Nano indentation studies of TiB <sub>2</sub> film	NMD 2006
36	S. K. Mishra, PKP Rupa,L. C. Pathak	2005	Deposition of nano TiB <sub>2</sub> film by magnetron sputtering	NMD 2005
35	S. K. Mishra inv. Talk	2005	Surface Engineering of industrial materials	DST workshop for engineering faculties of India under QIP programme held at BIT Mesra
34	S. K. Mishra inv. Talk	2005	nanocomposite hard coatings for industrial applications:	international symposium on Nano materials at BIT Mesra
33	S. K. Mishra inv. Talk	2004	SHS processing of advanced ceramics	MRSI Jamshedpur chapter
32	S. K. Mishra, L. C. Pathak, V. Shcherbakov	2003	SHS synthesis and sintering of Al <sub>2</sub> O <sub>3</sub> -ZrB <sub>2</sub> composite	International Russia-France summit Sept'2003 on SHS held at ISMAN, Russian Academy of science Russia
31	S. K. Mishra	2004	Self propagating high temperature synthesis of nano and fine borides and their composite	MRSI 2004 (MRSI medal award lecture)
30	S. K. Mishra	2003	Advanced techniques for surface engineering of	Reusrgence of metallic materials, the

			Industrial materials	current scenario, Pub. Insitute of engineers India, 128-140, 2003
29	S. K. Mishra and L. C. Pathak	2003	Self propagating high temperature synthesis (SHS) of advanced high Atemperature material	Advanced Materials Proceeding of Indo-Malaysian workshop, Allied publishers, editors L. C. pathak et.al 107-120, 2003
28	A. Khanra, L. C. Pathak, S. K. Mishra, M. M. Godhkhindi	2004	Synthesis of ultrafine ZrB <sub>2</sub> powder by modified SHS technique	International conference (ISAMAP) IIT Kharagpur Dec 2004.
27	S. K. Mishra, H. Gaur, PKP Rupa, L. C. Pathak	2005	Synthesis of SiCN nano hard coatings by RF magnetron sputtering	National seminar of nano science and Technol. organised by DST at NCL Pune in March'2005.
26	S. K. Mishra( Invited lecture)	2004	Synthesis of nano and fine ceramics by SHS process	International conference on powder Metallurgy, organized by Powder metallurgy association of India and IIT powai
25	S. K. Mishra, S. Das & S. K. Das	2003	Microstructure evolution in Boride & its composite prepared by SHS process	EMSI Annual conference held at Shimla, April 2003
24.	A. K. Khanra, L. C. Pathak, S. K. Mishra, M.M. Godkhindi, P. G. Mukunda	2003	Production of fine ZrB <sub>2</sub> powder and whisker by SHS Technique	annual ATM-29 of powder metallurgy. Jan.30-31, 2003 at Goa.
23.	A. K. Khanra, U. K.singh, S. Paswan, L. C. Pathak, S.	2003	Production of very fine ZrB <sub>2</sub> powder by SHS Technique	annual ATM-29 of powder

	K. Mishra, M.M. Godkhindi, P. G. Mukunda			metallurgy. Jan'2003
22	S. K.Mishra-Invited speaker	2002	hard ceramics and their composites by SHS processing	Annuan AGM of Indian Ceramic society Dec'2002.
21	S.K.Mishra	2002	., Advanced surface engineering, Resurgence of metal and materials (ROMM)	Institute of engineers, NML Jamshedpur
20	S. K.Mishra, L.C.Pathak, Du, Belov, P.Ramchandra Rao	2002	SHS synthesis of Advanced high temperature materials	Indo-Malyesian workshop (WAM- 2002), NML Jamshedpur
19	S. K.Mishra(Pathak), S. K. Das and P.Ramchandrarao	2002	., Sintering and microstructural behaviour of SHS produced Zirconium Diboride based composite	ICAMMP-2002, Int. Symposium at IIT Kharagpur'2002
18	S. K.Mishra(Pathak), S. Das and P.Ramchandrarao	2001	Sintering of SHS produced Zirconium Diboride. - A TEM stud y-	NMD 2001 held at RRL Bhubneshwar
17	S. K.Mishra(Pathak), S. K. Das and P.Ramchandrarao	2001	., Sintering and microstructural behaviour of SHS produced Zirconium Diboride based composite	Int. conference on SHS, SHS 2001, held at Isarael
16	S. K. Mishra(Pathak), S.das, S.K.Das, A.Roy, P.Ramchandrarao	1999	Effect of different addition on sintering behaviour of SHS produced ZrB <sub>2</sub>	Proceeding NMD'1999
15	L.C.Pathak and S. K. Mishra(Pathak)	1998	Synthesis of Nano-crystalline Aluminates powder by a solution Combustion technique	Proc. Int. Seminar at BHU, Dec'1998
14.	S. K. Mishra(Pathak)	1998	Sintering of ZrB <sub>2</sub> produced by SHS process	Indo Russian workshop at Hyderabad on SHS products under ILTP programme
13	L.C. Pathak, S. K. Mishra and S.Srikant	1998	Effect of silver on sintering of high Tc superconductors	National Seminar on Composites, COMPEAT-98 at NML Jamshedpur, Proc. pp175, 1998.
12.	S. K.Mishra (Pathak)	1998	Zirconium diboride- a potential high temperature material	Seminar on Aerospace High Temp. Mater., At NAL Bangalore

11.	S. K. Mishra (Pathak), R.P. Goel,, S.Das, and P.Ramachandrarao	1998	Effect of Ni on sintering of SHS produced Titanium carbide	IX AGM, MRSI, Feb. 1998, IIT Madras
10	G.Das, S.K. Mishra (Pathak), S.KDas, and A.N.Sinha	1997	Premature failure of EN24 steel due to improper heat treatment	51th ATM, IIM-NMD Nov. 1997, Jamshedpur e
9	. S. K. Mishra (Pathak), R.P.Goel, S.Das, and P.Ramachandrarao	1997	Effect of Ni and H <sub>3</sub> BO <sub>3</sub> on the synthesis of ZrB <sub>2</sub> by SHS technique	51th ATM, IIM-NMD Nov. 1997, Jamshedpur
8	. S. K. Mishra Pathak), R.P. Goel,, S.Das, and P.Ramachandrarao	1997	Synthesis of zirconium diboride by SHS process	CERAMICS-97, workshop at ARC at Hyderabad,October 1997
7	S. K. Mishra(Pathak), R.P. Goel, S.Das, and P.Ramachandrarao	1996	SHS synthesis of Titanium Carbide	50 <sup>th</sup> ATM, IIM-NMD, Nov. 1996, New Delhi
6	. M.V.H.Rao, S. K. Mishra, B.K.Mathur, D. Bhattacharya and K.L.Chopra	1990	STM studies of YBCO film on MgO	DAE symposium on solid state physics, at BHU, 1990.
5	L.C.Pathak, S. K. Mishra, D.Bhattacharya and K.L.Chopra	1995	Pyrophoric synthesis of ultrafine ceramic powders	VI-AGM, MRSI, Feb. 1995, IIT Kharagpur
4.	L.C.Pathak, S. K. Mishra, D.Bhattacharya and K.L.Chopra	1995	Synthesis of single phase SrTiO <sub>3</sub> powder by coprecipitation process	VI-AGM, MRSI, Feb. 1995, IIT Kharagpur
3	S. K. Mishra, L.C.Pathak, and V.Rao	1995	Synthesis of sub-micrometre sized Barium ferrite powder by combustion process	VI-AGM, MRSI, Feb. 1995, IIT Kharagpur
2	. S. K. Mishra and V.Rao	1994	Effect of annealing on the magnetic properties of melt spun MM-Fe-B alloys	48th ATM, IIM-NMD, Nov. 1994, Visakhapatnam
1	D.Bhattacharya, L.C. Pathak,S. K. Mishra, D.Sen, G.Markandeyulu, S.K. Ghatak, T.K.Dey, P. Pramanik, K.L.Chopra, S. Bhattacharya and H.S.Maiti	1990	Fabrication and properties of superconducting tapes of Y-Ba-Cu-O prepared by doctor blade process	. Intl. Conf. On Supercond. IISC Bangalore, January, 1990

**Invited talks delivered: 68**

68	S K Mishra	2024	Raman effect & its implications And Advanced research for Viksit Bharat	<b>National Science day lecture Ranchi University</b>
67	S K Mishra	2024	My journey and the contribution of women Nobel laureate and their struggles	<b>IWD-IISC, March 2024</b>
66	S K Mishra	2024	Women Noble Laureate in Science : Their contributions and struggle	<b>IWD-CGCRI, March 2024</b>
65	S K Mishra	2024	Biomaterials, Ceramic composite, Functional and Energy Materials research at CGCRI.	<b>Indo-Bangladesh conference at Chennai, Feb 2024</b>
64	S K Mishra	2024	Coatings for industrial components for corrosion, wear resistance and functional applications	<b>Powder Metallurgy association of India, PMAI, Pune, Feb 2024</b>
63	S K Mishra	2023	Glass research at CSIR-CGCRI	<b>Saint-Gobain, Chennai</b>
62	S K Mishra	2023	Development of advanced wear & corrosion resistance and functional coatings: A few solutions for industry application	<b>IISc, Student seminar Metallurgy department, April 2023</b>
61	S K Mishra	2023	Utilization of Solid Waste Generated by Steel Industries for Sustainable Development	<b>IRNL Vishakhapatnam, Aug 2023</b>
60	S K Mishra	2022	MgO-C Refractories for Steel Industries : Activities at CSIR- CGCRI	<b>CSIR-CMCRI,</b>
59	S K Mishra	2022	Optical fiber and its applications: R&D and technology at CSIR-CGCRI	<b>Indian Ceramic society, at BHU Varanasi, December 2022</b>
58	S K Mishra	2022	Nanocomposite coatings	<b>International Conference in NMD at Hyderabad November 2022</b>
57	S K Mishra	2022	Specialty Glass: Research and	<b>International Conference on</b>

			Development at CSIR-CGCRI	<b>Advances in Glass and Glass-Ceramics ICAGGC 2022, Aug 2022</b>
56	S K Mishra, invited	2022	Development of Industrial coatings by surface engineering	<b>11<sup>th</sup> Professor S.P.Sengupta Memorial Lecture</b> , MRSI Kolkata chapter, July 2022
55	S K Mishra	2022	Carbon foot-print reduction: Role of ceramics	Indian Institute of Ceramics, JSR chapter, April 2022
54	S K Mishra	2021	Glass science and technology	ATAL Tinkering Lab, MNPS School Jharkhand, September 2021
53	S.K.Mishra	2021	Coatings for Industrial application	Student conference at IISc Banglore, march 2021
52	S.K.Mishra	2020	Nanocomposite coatings	BITs Pilani Hyderabad campus Feb 2020
51	S.K.Mishra	2020	Microstructure and mechanical behavior correlation of nanocimposite coatings	International conference, 12 <sup>th</sup> Asia pacific electron microscopy conference at Hyderabad, India, Feb 2020, APMC 2020.
50	S.K.Mishra	2020	Innovation in Science Education	NASI seminar at Jharkhand womens colege
49	S. K. Mishra	2019	Synthesis and sintering of borides and composite by innovative processes	ADMAT-2019, Int. conf on materials for defence held at Hyderabad by DMRL.
48	S.K. Mlshra	2019	Thermal Barrier coatings	TEQIP workshop on surface engineering & composite materials, May 2019
47	S.K. Mlshra	2019	Hard nanocomposite coatings	TEQIP workshop on Materials,Manufacturing and modeling: advances and constraints, NIT Jamshedpur, May 2019
46	S.K. Mlshra	2019	Surface Engineering	TEQIP workshop on surface engineering & composite materials, May 2019
45	S.K. Mlshra	2018	Function Coatings by different processes	Bharat Forge February 2018
44	S.K. Mishra	2018	Corrosion and wear coating on steel research at NML.	Int. Conf. ASIA Steel Feb 2018
43	S.K. Mishra	2017	Alternative coatings on steel	National workshop on HDGS 2017-August 2017
42	S.K. Mishra	2017	Coating research at NML	Tatabluescope May 2017
41	S.K. Mishra	2016	Multilayer coatings for solar thermal applications	NMD -ATM 2016 at IIT Kanpur, organised by Indian Institute of Metals
40	S. K. Mishra	2016	Surface engineering for corrosion and wear protection	Industrial HIGH technical manager training at Jamshedpur, May 2016



39	S. K. Mishra	2016	Nanocomposite hard coatings for engines	INDO-US workshop and discussion meeting in coatings at Koor, organised by IIT Mumbai and IISc Bangalore, March 2016
38	S. K. Mishra	2015	Surface engineering at NML	International Seminar on surface engineering, SSPC at Greater Noida Oct 2015
37	S K Mishra, L. C. Pathak	2013	Multilayered Thermal barrier coatings	AEROMAT , USA Seattle, organised by ASM International
36	S. K. Mishra	2013	Wear and Oxidation resistance coatings for thermal power plants	NTPC, power management Institute, Jan 2013
35	S. K. Mishra	2012	High temperature ceramics and coatings at NML	IIM Jamshedpur, as award presentation
34	S. K. Mishra, Inv	2012	Deposition, deformation and mechanical behavior of hard and tough nano-composite thin films by Magnetron sputtering	National Seminar on nanotechnology, Raigarh, Aug 2012
33	S. K. Mishra, Inv.	2012	Deformation and mechanical behavior of hard and tough nano-composite thin films by Nanoindentation.	Nanoindentation seminar by Agilent USA, and Tosniwal and others at Delhi July 2012
32	S.K. Mishra, Inv.	2012	Hard yet tough coatings for wear & oxidation resistance and high temperature applications	Diamond Jubilee Seminar at IIT Kharagpur Jan 2012
31	S. K. Mishra	2011	Hard coatings of TiB <sub>2</sub> , TiB-N, Ti-Si-B-C-N for wear & oxidation resistance and high temperature applications	Key note add NMD Hyderabad
30	S.K. Mishra, P. Mahato, L.C. Pathak	2011	Effect of substrate temperature on Ti-Si-B-C super-hard Nanocomposite coatings deposited by RF/DC magnetron sputtering	NMD Hyderabad
29	S. K. mishra	2011	Materials for future technology	IIM Kolkata
28	S. K. mishra	2011	Deposition of hard silicon carbonitride (SiCN) nanocomposite and multilayered thin films by Magnetron sputtering	Int. Conf. On Advanced Materials
27	S. K. Mishra, do	2011	Mechanical properties of small volume and thin films by Nanoindentation	Jadavpur university metallix 2011

26	S. K. Mishra, do	2011	Nanocomposite coatings for automobiles	ASM int. conf at Mumbai
25	S. K. Mishra	2011	Nanocomposite by shs process	Int. conf ISME at Pune
24	S. K. Mishra	2010	Deformation and Mechanical behaviour of hard nanocomposite thin films	Jadavpur University, seminar on “Wear, deformation, mevhanical behaviour of materials” March 2009
23	S. K. Mishra	2009	Fine and nano borides and its composite by SHS process	University of Central Florida,USA as invited speaker in workshop on “Boron rich solids”, arranged by UCF and NASA, Dec 2009
22	S. K. Mishra	2009	Nanocomposite coatings at NML	ISMAN, Russian academy of Sciences, Moscow, Russia, April 2009
21	S. K. Mishra	2009	Different processes and properties of coatings for industrial components and future demands and current trends	Workshop on surface engineering at Pune IIM chapter, Jan 2009
20	S. K. Mishra	2008	SHS processing of advanced hard materials and nano composite	Indo Russian conference on SHS at IISC Banglore Nov 2008
19	S. K. Mishra	2008	Nano materials and coatings	At TRDDC pune, Aug 2008
18	S. K. Mishra	2007	Nano and nanocomposite hard materials and coatings	IIT Kanpur, int. conf. on nanomaterials, October 2007
18	A. S. Bhattacharya, S. K. Mishra	2008	SiCN coatings on steel substrate	Int. seminar, coated steel, convenor Tata steel, Feb 2008
17	S.K. Mishra	2007	Hard coatings	IGCAR Sept 2007
16	S. K. Mishra	2007	Deposition and mechanical properties of nanostructured thin films	MRSI seminar at Lucknow Univ. March 2007
15	S. K. Mishra	2007	Mechanical properties of thin films	Seminar on “deformation & damage of materials” Jan 2007 Jadavpur Univ.
14	S. K. Mishra	2006	Women in physics: problem and solutions	Conference on Physics education at Jamshedpur, by womens College Ranchi University
13	S. K. Mishra	2006	Advanced Materails at CSIR	At China NSFC as delegation member
12	S. K. Mishra	2005	Surface Engineering of industrial materials	DST workshop for engineering faculties of India under QIP programme held at BIT Mesra

11	S. K. Mishra	2005	Nano materials : nano-composite hard coatings for industrial applications:	International symposium on Nano materials at BIT Mesra
10	S. K. Mishra	2004	SHS processing of advanced ceramics	MRSI Jamshedpur chapter
9	S. K. Mishra	2004	Self propagating high temperature synthesis of nano and fine borides and their composite	MRSI 2004 (MRSI medal award lecture)
8	S. K. Mishra	2003	Advanced techniques for surface engineering of Industrial materials	Resurgence of metallic materials, the current scenario, Pub. Institute of engineers India, 128-140, 2003
7	S. K. Mishra	2004	Synthesis of nano and fine ceramics by SHS process	International conference on powder Metallurgy, organized by Powder metallurgy association of India and IIT powai
6	S. K. Mishra	2002	SHS synthesis and hard coatings at NML	Colorado school of mines
5	S. K. Mishra	2002	hard ceramics and their composites by SHS processing	Annual AGM of Indian Ceramic society Dec'2002.
4	S.K.Mishra	2002	Advanced surface engineering, Resurgence of metal and materials (ROMM)	Institute of engineers, NML Jamshedpur
3	S. K. Mishra	2001	SHS synthesis of $ZrB_2$	ISMAN Russia
2.	S. K. Mishra	1998	Sintering of $ZrB_2$ produced by SHS process	Indo Russian workshop at Hyderabad on SHS products under ILTP programme
1 .	S. K. Mishra	1998	Zirconium diboride- a potential high temperature material	Seminar on Aerospace High Temp. Mater., At NAL Bangalore

## Appendix-2

### Sponsored projects undertaken as project leader :

Title of the Project	Sponsoring Organization	Project no	Amount	Role
Very high power MW Tubes: Design and Development Capabilities (MTDDC) <b>April 2013-March 17</b>	CSIR Network project <b>Nodal Lab. CSIR-CEERI</b>	: <b>PSC 101</b>	<b>NML Share : 160</b>	PL for the Module of CSIR-NML
Advanced ceramic materials and composites for energy and structural applications (CERMESA) <b>April 2013-March 17</b>	CSIR Network project: <b>Nodal lab CGCRI</b>	, ESC 104	NML Share: 38 L	Co-PL
Development of improved protective coating for solar thermal application on aluminum with higher reflectivity <b>May 2014-April 2015</b>	<b>Aditya Birla group S &amp; T</b>	SSP 0909	11.36 L	PL
Wear and corrosion resistant nanocomposite coating better than CrN 1 <sup>st</sup> <b>Dec 2013-30Nov 2015</b>	<b>Boeing USA</b>	SSP 0878	38.00 L	PL
Study on the interface layer formation during hot dip galvanizing/ galvannealing of advanced high strength steel for automotive applications (GAP 0253) <b>16-12-2013 to 15-12-2016)</b>	SDF and Tata Steel	1594 L		Member, Evaluation of microstructure, interface, mechanical behaviour of galvanized coating.
Environmental friendly aluminium coating to replace cadmium-phase III <b>Nov 2012-Nov 2015</b>	<b>Boeing USA</b>	SSP 0816	72.74 L	Co-PL
Development of compositionally modulated multilayered alloy of Zn-Mn Coatings by electroplating technique <b>Dec 2013-Dec 2015</b>	<b>Boeing USA</b>	SSP 0886	36.00L	Member evaluation of microstructure and interface, total review.
Studies on impact of air pollution on corrosion of metallic and non metallic	<b>Central pollution board CPCB</b>	SSP 0640	83.34 L	Member, Analysis of the data and review

materials, <b>Jan 2011-March 2015</b>				
Coated steel products performance evaluation, <b>Jan 13 to Dec 16</b>	<b>Tata Blue scope</b>	SSP 0823	33.8 L	Member, analysis of the data and review Member
Solar reflecting and protective coating on aluminium for solar reflectors in power plant application. <b>Phase I March 2012-Sept 2013</b>	<b>Aditya Birla group S &amp;T</b>	CLP 0096	11.36 L	PL
Design of novel hard & tough amorphous metallic coatings. <b>1/10/12 to 30/09/13.</b>	<b>Inhouse NML</b>	OLP180	10 L	Co-PL
ENVIRONMENTAL FRIENDLY ALUMINUM COATING TO REPLACE CADMIUM-Phase-II	<b>Boeing USA 10-11-11 to 31-5-13</b>	SSP-0763	33.008 L	Co-PL
ENVIRONMENTAL FRIENDLY ALUMINUM COATING TO REPLACE CADMIUM-Phase-I	<b>Boeing USA 1-11-10 to 9-12-11</b>	SSP-0656	13.245 L	Co-PL
Development of WC-Co coatings by plasma spray / HVOF technique on sink roll for applications in galvanizing bath	<b>Tata-Steel 1-9-10 to 29-2-12</b>	CLP-0069	10.313 L	Co-PL
Development of suitable Zn-Ni coatings by Plasma spray or HVOF technique for applications in fuel tank and anti bacterial components	<b>Tata Steel</b>	CLP-0070 Aug 2010-July 2011	9.88 L	Co-PL
Development of Zn-Ni-Cu coatings on CRM sheets for anti bacterial and fuel tank applications,	<b>Tata-Steel</b>	CLP-0091 Dec 2011- June 2012	9.927 L	Member,
Development of high temperature composite coatings for life extension refractory lining or new lining for LD converter:	<b>Tata-Steel 1-12-2011 to 30-6-2012</b>	CLP-0078	5.29 L	Co-PL

Phase I				
Nanostructured Advanced Materials	CSIR Network Project: Nodal LAB: CSIR-NML Apr 2009-March2012	NWP 0051	3800 L	PL for the Module on Coatings & PL for the Activity: Nanostructured Ceramics, Composites and Hard Coatings,
Development and forming of performance driven special steels	CSIR SUPRA INSTITUTIONAL PROJECT: <b>2007-2012</b>	SIP 0025	1600 L	PL for the Module: Surface engineering of steel for higher performance-automobile and hydro-turbine:
Development of advanced light weight metallic materials for engineering applications	CSIR Network Project Nodal Lab: CSIR-AMPRI 2007-2012	: NWP-0028	<b>950 L NML Share</b>	PL for the Activity: Fabrication of TiB <sub>2</sub> electrode for Aluminum production
Technology for assessment and refurbishment of engineering materials and components T(AREMAC)	CSIR Network Project Nodal Lab: CSIR-NML <b>2007-2012</b>	: NWP 0027	3000 L	PL for the Activity: Nano coatings of TBC for gas turbine blades and inner side pipe coatings by SHS processing
Development of Multilayer tough nano-composite coatings for smart applications.	In house project Sept 2012, Aug 2013	OLP 135	10 L	Co-PL
Custom tailored specialty material	CSIR Network project: Nodal Lab: CSIR-CGCRI ( <b>2003-2007</b> )	: CMM0022	70.00 L NML's Share	PL of the Activity "Development of CN film by PECVD" under Module: Development of super-hard materials and coating. <b>Co-PL: Development of boride base nano-composite</b>
Catering to Aerospace Materials	CSIR Network Project: Nodal Lab: CSIR-NAL ( <b>2003-2007</b> )	CMM001	NML's Share 51.50 L	Co-PL of the Activity: Fabrication of oxidation and wear resistant coatings of TiB <sub>2</sub> coatings by plasma spraying for aerospace application
Deposition of Si-C-N nano-composite thin film	DST ( <b>Nov.2004-Oct 2007</b> )	, GAP 0123	37.095 L	PL
Development of toughened Zirconia ceramics for tribological applications"	DST,( <b>July 2003-June 2006</b> ), <b>Collaboration with IIT Kanpur</b>	GAP 0108	17.208 L	PL from CSIR-NML
Densed ceramic composite by SHS process,	DST under ILTP, Indo-Russian-	GAP-0142	12.39 L	PL

	<b>Nov.2005 - Nov.2008</b>			
Synthesis & sintering of ZrB <sub>2</sub> - Al <sub>2</sub> O <sub>3</sub> composite	DST under ILTP Indo Russian. <b>Apr. 2000-Mar 2004</b>	- GAP 0057	16 L	PL
Development of piezo polymer composite of PMN system	Inhouse, CSIR NML (2005-2006)	- OLP	5L	PL
Hard coatings of Ti/Zr diborides and carbon nitride	CSIR, Young scientist award project ( 1-1- <b>2000-31-12-2004</b> )	OLP - 21631	10.00 L	PL
SHS of ZrB <sub>2</sub> -C and ZrB <sub>2</sub> -TiC composite	Inhouse <b>Sept 2002-Aug 2003</b>	- OLP	-5L	PL
Synthesis of borides by SHS process	Inhouse (1-9-98-- <b>31-3-2000</b> )	- OLP	-5	PL