


Brief Biodata

Name: Dr. Ritu Srivastava

Designation:	Senior Principal Scientist	
DP No. and Name:	Photonics Materials Metrology (4.02)	
DU No. and Name:	Advanced Materials and Devices Metrology(4.0)	
Email:	ritu@nplindia.org	
Date of Joining CSIR-NPL:	10/08/2004	
Phone (office)	011-45608644	

Research Area/ Interest

My area of interest is organic semiconductor devices which include the development of novel inorganic/organic/perovskite materials, nano and 2D materials, and study of their electrical and optical properties. These developed materials have been explored for their application in the fabrication of optoelectronic devices like organic light-emitting diodes, organic/perovskite photovoltaic cells, organic thin-film transistors, and organic light-emitting transistors. Presently, we are working to explore the synthesis of lead-free new direct bandgap all inorganic double perovskite (DP) bulk crystal and quantum dots for solar cells by the colloidal route. Our purified NCs exhibit excellent phase and colloidal stability even in the ambient atmosphere. I am involved in the development of color shift intaglio ink and its use for security ink.

Educational Qualifications

(Please write latest qualification first)

Degree	Subject	University/ Institute	Year
Ph.D.(Physics)	Banaras Hindu University, Varanasi(U.P)	Banaras Hindu University, Varanasi(U.P)	2001
M.Sc.(Physics)	Purvanchal University of Jaunpur (U.P.)	Purvanchal University of Jaunpur (U.P.)	1994
B.Sc.	Purvanchal University of Jaunpur (U.P.)	Purvanchal University of Jaunpur (U.P.)	1991

Academic / Research Experience

Grade / Post	Institute	Duration		Research Field
		From	To	
Senior Principal Scientist	CSIR-National Physical Laboratory, New Delhi	2016	Till now	Photonics Materials Metrology
Principal Scientist	CSIR-National Physical Laboratory, New Delhi	2012	2016	Organic Semiconductor
Senior Scientist	CSIR-National Physical Laboratory, New Delhi	2008	2012	Organic Semiconductor
Scientist C	CSIR-National Physical Laboratory, New Delhi	2004	2008	Organic Semiconductor
Faculty Member	ICFAI University, Hyderabad	2003	2004	Academic

Ex SRF-CSIR	Banaras Hindu University, Varanasi(U.P)	2002	2003	Material Science
SRF-CSIR	Banaras Hindu University, Varanasi(U.P)	2000	2002	Material Science
SRF CSIR - PROJECT	Banaras Hindu University, Varanasi(U.P)	1999	2000	Material Science
Project Assistant MNES	Banaras Hindu University, Varanasi(U.P)	1996	1999	Material Science

No. of Publications

No. of Publications in SCI Journals	No. of Publications in non-SCI Journals	No. of Publications in Conference Proceedings	Books	Total
163		4	7	174

Selected Publications

Kumar, A., Swami, S.K., Singh, V.N., Gupta, B.K., Sinha, O.P., **Srivastava, R.** Ethylcellulose-Encapsulated Inorganic Lead Halide Perovskite Nanoparticles for Printing and Optoelectronic Applications
Particle and Particle Systems Characterization, 39(6), 2100250,2022

Ashish Kumar, Sanjay Kumar Swami, S.S. Rawat, V.N. Singh, Om Prakash Sinha, **Ritu Srivastava**
Mixed bismuth-antimony-based double perovskite nanocrystals for solar cell application, Int, J Energy Res. 1–12,2021

Ashish Kumar , Rohit Sharma, Sandeep Yadav, Sanjay Kumar Swami, Reena Kumari, V N Singh, S Ojha, Joerg J Schneider, **Ritu Srivastava**, O P Sinha ,
A study on chemical exfoliation and structural and optical properties of two-dimensional layered titanium diselenide ,
Dalton Trans,50,3894–3903,2021

Razi Ahmad, Gautam Virender Nutan,Dinesh Singh,Govind Gupta,Udit Soni,Sameer Sapra,and, **Ritu Srivastava** Colloidal lead-free Cs₂AgBiBr₆ double perovskite nanocrystals:Synthesis, uniform thin-film fabrication, and application in solution-processed solar cells
Nano Research14,1126–1134 ,2021

Ashish Kumar, S. S. Rawat, Sanjay Kumar Swami, Vidya Nand Singh, and **Ritu Srivastava**,
Benzoyl Halide as Alternative Precursor for Synthesis of Lead Free Double Perovskite Cs₃Bi₂Br₉ Nanocrystals,
Journal of, Nanoscience and Nano technology20,3802–3808,2020

Ritu Verma and **Ritu Srivastava**, Study of contact resistance with PtPc buffer layer in vertical organic field-effect transistor,
Eng. Res. Express,1,015015,2019

R Verma, SP Tiwari, R Kumari, **R Srivastava**
Study of enhancement in the dielectric and electrical properties of WO₃-doped LiF nano-composite,
Journal of Materials Science, 53,4199-4208,2018

Kalpana Agrawal, Vinay Gupta, **Ritu Srivastava**, SS Rajput Metal-CH₃NH₃PbI₃-Metal Tunnel FET
IEEE Transactions on Electron Devices,65,1902-1909,2018

Ritu Verma, CK Suman, **Ritu Srivastava**,

WO₃-doped LiF as gate dielectric for p-channel vertical organic field effect transistor application,
Thin Solid Films,666,156-160,2018
K Agrawal, **R Srivastava**, SS Rajput,
The Effect of Base–Emitter Interfacial Layer on the Organic Permeable Base Transistor’s Characteristics,
IETE Technical Review,1-12,2018
Kalpana Agrawal, **Ritu Srivastava**, SS Rajput,
Analysing the TIPSP-based VOFET through transistor efficiency (gm/ID),
IET Circuits, Devices & Systems,2018
Razi Ahmad, **Ritu Srivastava**, Hema Bhardwaj, Sushma Yadav, Vidya Nand Singh, Suresh Chand, Nidhi Singh, Sameer Sapra,
Size Tunable Synthesis of Colloidal Silver Sulfide Nanocrystals for Solution-Processed Photovoltaic Applications,
Chemistry Select,3,5620-5629,2018
Harneet Kaur, Sandeep Yadav, Avanish K. Srivastava, Nidhi Singh, Shyama Rath, Jorg J Schneider, Om P. Sinha and **Ritu Srivastava**,
High Yield Synthesis and Chemical Exfoliation of Two-Dimensional Layered Hafnium Disulphide,
Nano research,11,343–353,2018
Razi Ahmad, **Ritu Srivastava**, Sushma Yadav, Dinesh Singh, Govind Gupta, Suresh Chand, and Sameer Sapra,
Functionalized Molybdenum Disulphide Nanosheets for 0D-2D Hybrid Nanostructure: Photoinduced Charge Transfer and Enhanced Photoresponse,
J. Phys. Chem. Lett.,8 (8) ,1729–1738,2017
Razi Ahmad, **Ritu Srivastava**, Sushma Yadav, Suresh Chand, Sameer Sapra,Functionalized 2D-MoS₂-Incorporated Polymer Ternary Solar Cells: Role of Nanosheet-Induced Long-Range Ordering of Polymer Chains on Charge Transport,
ACS applied materials & interfaces,9,34111-34121,2017
Surya Prakash Tiwari, Ritu Verma, Md Bayazeed Alam, Reena Kumari, OP Sinha, **Ritu Srivastava**
Charge transport study of P3HT blended MoS₂,
Vacuum,146,474-477,2017
Kalpana Agrawal, **Ritu Srivastava**, SS Rajput,
Modeling of Organic Permeable Base Transistor Based on Inverse of Transistor Efficiency (IC / gm)
IEEE Transactions on Electron Devices,64,3353-3359,2017
Kalpana Agrawal, Omwati Rana, Nidhi Singh, **Ritu Srivastava** and S.S. Rajput,
Low Voltage Organic Permeable Base N-type Transistor,
APL,109,163301,2016
Harneet Kaur, Sandeep Yadav, Avanish. K. Srivastava, Nidhi Singh, Jörg J. Schneider,Om. P. Sinha, Ved V. Agrawal, & **Ritu Srivastava**,
Large Area Fabrication of Semiconducting Phosphorene by Langmuir-Blodgett Assembly,
Scientific Report,1-8,2016
Ritu Verma, Vandana Yadav, Khushdeep Kaur, Md Bayazeed Alam, Nidhi Singh,C. K. Sumana and **Ritu Srivastava** ,
A vertically stacked phosphorescent multilayer organic light emitting transistor,
RSC Adv.,6,90873-90877,2016
Arunandan Kumar, Priyanka Tyagi, Janardan Dagar, **Ritu Srivastava**,
Tunable field effect properties in solid state and flexible graphene electronics on composite high – low k dielectric,
Carbon,Vol.99,579–584,2016

Patents

Process for growing an electron injection layer to improve the efficiency of organic light emitting diodes, Kamalasanan Narayanan Modeeparampil, Ritu Srivastava, Rakhi Grover, Sundeep Kumar Dhawan, Suresh Chand, S. S. Bawa, New Delhi, US 8,491,820 B2, Jul. 23, 2013, US, **Awarded**

A process for growing an electron injection layer to improve the efficiency of organic light emitting diodes

Kamalasanan MN, Srivastava Ritu, Grover Rakhi, Dhawan SK, Chand Suresh, Bawa SS, IN 310958, April 4, 2019 **Awarded**

Lithium metal quinolates and process for preparation thereof as good emitting interface materials as well as N-type dopant for organic electronic devices, Kamalasanan Narayanan Modeeparampil, Ritu Srivastava, Amit Kumar, Ishwar Singh, Sundeep Kumar Dhawan, S. S. Bawa, New Delhi, US 9,368,734 B2, June. 14, 2016 US, **Awarded**

Lithium metal quinolates and process for preparation thereof as good emitting, interface materials as well as n-type dopant for organic electronic devices, Kamalasanan Narayanan Modeeparampil, Ritu Srivastava, Amit Kumar, Ishwar Singh, Sundeep Kumar Dhawan, S. S. Bawa, New Delhi, Indian, 297653, Indian, **Awarded**

Current Activities

(Not more than 100 words)

Working in the general area of organic semiconductor devices which includes development of novel inorganic/organic/perovskite materials, nano and 2D materials, synthesis and characterization of these materials, study of electrical, optical and optoelectronic properties and its application in fabrication of optoelectronics devices like organic light emitting diodes, organic/perovskite photovoltaic cells, organic thin film transistors and organic light emitting transistors and Luminescent security ink.

Honour(s)/Award(s)/ Fellowship(s)

5th Venus International Research Awards -2019 for DISTINGUISHED SCIENTIST IN PHYSICS' under the Science Discipline

CSIR Extended Senior Research Fellowship

CSIR Senior Research Fellowship

CSIR Senior Research Fellowship (Project)

Contributions to AcSIR

Member of Ph.D. Recruitment, Chairman of the comprehensive examination board, Review article and DAC member for the evaluation of Ph. D. Thesis.

Appointed as Coordinator AcSIR Designate with effect from January 01, 2022 and take over charge as AcSIR Coordinator at CSIR-NPL with effect from January 01, 2023

Membership of Professional Societies/ Institutions

Member of ICC committee

Member of Indian Women Association

Member of Indian Solid State Ionic Society.

Member of National Science Movement

Any other Information

(Not more than 100 words)

Associate Editor of Journal of Modern Polymer Chemistry and Materials