



SPECTRUM



A biannual newsletter, School of Basic Sciences, IIT Mandi
Volume # 01, January 2021

Chief Patron

Prof. Ajit Kumar Chaturvedi
(Director, IIT Mandi)

Chairperson of School

Dr. Syed Abbas,
(SBS, IIT Mandi)

Newsletter Team

Dr. Ajay Soni,
Dr. Amit Prasad,
Dr. Bhaskar Mondal,
Dr. Muslim Malik,
Dr. Rajnish Giri,
Dr. Prasad Kasturi

SBS Faculty Strength

Regular Faculty: 37,
Professor: 5,
Associate Professor: 18,
Assistant Professor: 14,
Ramalingaswami Fellow: 1,
Visiting Disting. Prof: 1,

Publications : ~ 125

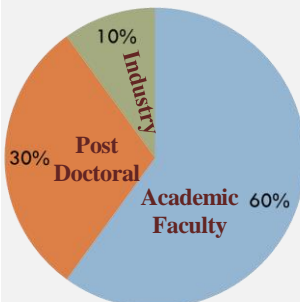
Patents: 4

External Funds : ~ 5.1 Cr

Student Strength

PhD Scholars: 157,
M. Tech.: 31,
M. Sc.: 208,
B. Tech.: 133,

Alumni Placement



SBS Staffs

Anoop Kumar,
Alka Thakur,
Palvi Sharma,
Sushma Verma,

Chairperson's Message

Greetings!! It gives me an immense pleasure to present the first issue of "SBS-Newsletter". This newsletter is one of the ways in which we disseminate the information relating to the activities of the School of Basic Sciences (SBS), IIT Mandi. SBS is very active in high quality research, outreach activities and other academic and administrative responsibilities. Apart from various PG programs, we have also started three new B.Tech. programs jointly with other schools. As you read this newsletter, you will realize that the School had a very active year 2020, though situation was adverse with Covid-19. I congratulate five pioneering faculty colleagues, who joined as a regular professor in SBS. Our faculty are able to attract excellent amount of external research funding from various agencies. Since its inception in 2010, the school is progressing and scaling the height day by day. This achievement is due to its faculty members, staff and students. I would like to thank all my colleagues, staff and scholars for their tireless efforts which helped school to grow with excellent pace.

Dr. Syed Abbas

Academic Programs

UG Programs

B. Tech. in Data Science and Engineering,
B. Tech. in Engineering Physics
B.Tech.-M. Tech. Integrated Dual Degree in Bio-Engineering

PG Programs

Integrated-PhD (Physics),
M. Sc. (Chemistry, Mathematics and Physics)
M. Tech. (Biotechnology)

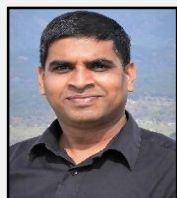
PhD Programmes:

(BioX, Chemistry, Mathematics and Physics)

Research Programs



Congratulations to the First Cohort of Professors in the School of Basic Sciences



Dr. Chayan Nandi
Professor
(Physical Chemistry)



Dr. Pradeep P.
Professor
(Inorganic Chemistry)



Dr. Prem Felix
Professor
(Material Chemistry)



Dr. Subrata Ghosh
Professor
(Organic Chemistry)



Dr. Suman K Pal
Professor
(Cond-Mat Physics)



Dr. Baskar B.
Joined as Assistant Professor (BioX).
He is a Ph.D. from NCCS, Pune.

New Faculty

Faculty Recognitions



Dr. Amit Jaiswal, Assistant Professor (BioX) has been selected as an Associate of The Indian Academy of Sciences, Bangalore, 2020-2023.



Dr. Syed Abbas, Associate Professor (Mathematics) has been selected as an Associate of The Global Young Academy 2020-2023. He is a fellow of Indian National Young Academy of Science.



Dr. Amit B. Pawar, Assistant Professor (Chemistry) has been selected as Scientific Editor for Synthetic Reaction Updates, from the Royal Society of Chemistry, 2020-2022.



Dr. Rajanish Giri, Assistant Professor (BioX) has been selected as an Associate of The National Academy of Agriculture Sciences, New Delhi, 2020-2023.



Dr. Rajendra Ray, Associate Professor (Mathematics) has been selected as Executive Council member of Indian Society of Theoretical and Applied Mechanics (ISTAM) for 2021-23.



Dr. Amit Prasad, Assistant Professor (BioX) has been nominated as one of the National Coordinators by Ministry of Education, Prime Minister Office, GoI, for the Drug Discovery Hackathon for Covid-19, 2020.

Contact: Chairperson, School of Basic Sciences, IIT Mandi, Kamand, H.P. - 175075, India

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Students Achievements and Placements

Ankur Kumar, PhD Scholar, working with Dr. Rajanish Giri, received Fulbright Nehru PhD Fellowship.

Shaunak Roy, PhD Scholar, working with Dr. Amit Jaiswal, received Fulbright Nehru PhD Fellowship.

Vipin Kumar, PhD Scholar, working with Dr. Muslim Malik, received Indo-French Raman-Charpak Fellowship.

Giredhar Muthiah, M. Tech. student, working with Dr. Amit Jaiswal, received DAAD fellowship.

Mr. Vikas Kumar, PhD Scholar, working with Dr. Nitu Kumari, received Best Paper Award in 3rd International Conference on Mathematical Modelling, Applied Analysis and Computation 2020, held at JCERC University, Jaipur.

Conferences/Workshops

National workshop on dynamical system and chaos theory (Feb 29th, 2020) Organizers: Dr. Nitu Kumari

Virtual training workshop of himachal school teachers for children science congress 2020, (October 13th, 2020) Organizers: Dr. Ajay Soni, Dr. Syed Abbas, Dr. Aditi Halder, Dr. Prosenjit Mondal, Dr. S. Roychaudhary (from SCEE), Prof S. C. Jain and Dr. Swati Sharma (from SE).

Virtual workshop on differential equations & their applications (Nov 27-28, 2020) Organizers: Dr. Muslim Malik and Dr. Parmod (from SE).

Biotechnology Teaching Laboratory



Chemistry Teaching Laboratory



Physics Teaching Laboratory



Recent Patents (Granted as well as Filed)

Compounds for visualization and quantification of albumin, method for preparation and use thereof, Gaurav Dey, Dr. Prosenjit Mondal, Dr. Subrata Ghosh (2020). Patent application no. 201711003716 (Granted: 342426)

Pharmaceutical composition comprising Nano formulation of Low Dose Naltrexone (LDN) and GLPI agonist (exendin4) and/or anti-microbial, Abhinav Choubey and Dr. Prosenjit Mondal (2020).

Carbogenic Fluorescent Nanodot as New Probe for Super Resolution Microscopy and Method of Application Thereof. Navneet C. Verma, Aditya Yadav, Chethana Rao, Dr. Chayan Kanti Nandi (2020).

Single-Step Synthesis of Multimodal Magneto-Fluorescent Core-Shell Superparamagnetic Iron Oxide Nanoparticles. Ashish Tiwari, Anup Singh, Dr. Chayan Kanti Nandi, Dr. Jaspreet Kaur (2020).

Recently Commenced Projects (~ 510 Lakh INR)

SERB, PI: Dr. Prosenjit Mondal, Budget: Rs. 43,60,000, Duration: 3 years

SERB, PI: Dr. Rajnish Giri, Budget: Rs. 57,97,000, Duration: 3 years

SERB, PI: Dr. Tulika P Srivastava, Budget: Rs. 41,51,400, Duration: 3 years

SERB, PI: Dr. Syed Abbas, Budget: Rs. 6,60,000, Duration: 3 years

SERB, PI: Dr. Aditi Halder, Budget: Rs. 42,17,400, Duration: 3 years

Himalayan Drug Company, PI: Dr. Shyam Masakapalli, Budget: Rs. 5,68,800, Duration: 1 year

DRDO, PI: Dr. Ajay Soni; Budget: Rs. 15,24,000, Duration: 1 year

SERB, PI: Dr. Nitu Kumari; Budget: Rs. 5,50,000, Duration: 1 year

SERB, PI: Dr. Bhaskar Mondal; Budget: Rs. 19,91,000, Duration: 2 year

SERB, PI: Dr. Garima Agrawal; Budget: Rs. 24,31,000, Duration: 2 years

SERB, PI: Dr. Girish Sharma; Budget: Rs. 13,62,372, Duration: 2 years

SERB, PI: Dr. Amit B. Pawar; Budget: Rs. 30,44,254, Duration: 2 years

SERB, PI: Dr. Kaustav Mukherjee; Budget: Rs. 49,87,400, Duration: 3 years

DST, Indo-Sweden, PI: Dr. Ajay Soni; Budget: Rs. 38,36,880, Duration: 3 years

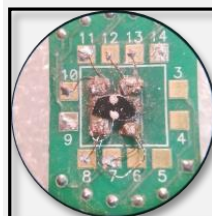
SERB, PI: Dr. Qaiser Jahan; Budget: Rs. 6,60,000, Duration: 3 years

SERB, PI: Dr.. Chayan Kanti Nandi; Budget: Rs. 66,92,400, Duration: 3 years

DST, PI: Dr. Arti Kashyap; Budget: Rs. 35,65,540, Duration: 3 years

SERB, PI: Dr. Syed Abbas; Budget: Rs. 6,60,000, Duration: 3 years

Highlights of the Research and Development Activities

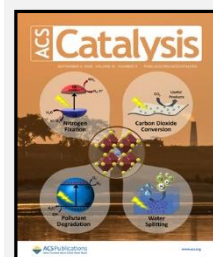
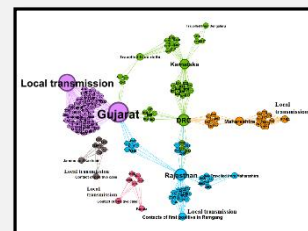


Researcher Shailija Sharma and Dr. C. S. Yadav has developed an experimental setup for the measurement of Seebeck and Nernst coefficients on the single crystalline flakes and polycrystalline samples in the temperature range 1.8 - 320 K.

Rev. Sci. Instrum. **91**, 123907 (2020).

Dr. Sarita and her group has studied the diffusion of Covid-19 spread from the global to national level and identified a few superspreaders that played a central role in the transmission of this disease in India.

Journal of Travel Medicine, **27**, 8 (2020).



Dr. Venkata Krishnan group summarizes the recent reports on perovskite oxide based photocatalysts for organic pollutant degradation, water splitting, carbon dioxide conversion, and nitrogen fixation along with the basic understanding of involved mechanisms, current trends and advances in the field. The research work is highlighted as a cover page of the journal.

ACS Catalysis **10**, 17, 10253, (2020).

Dr. P. Mondal's group showed a critical role of SIRT1 in inflammation and insulin resistance in hyperinsulinemia and suggest that low dose naltrexone may provide a novel therapeutic approach against hyperinsulinemia-associated insulin resistance.

J. Biol. Chem. **295**, 16359, (2020).

