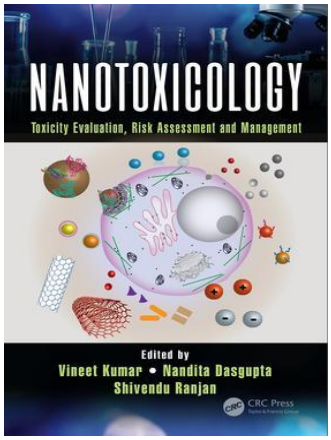
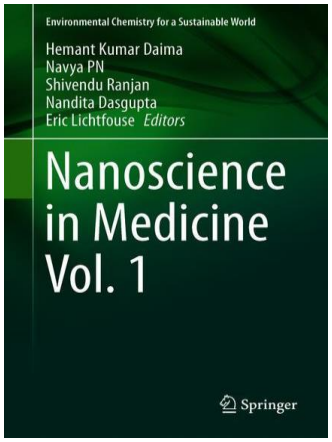
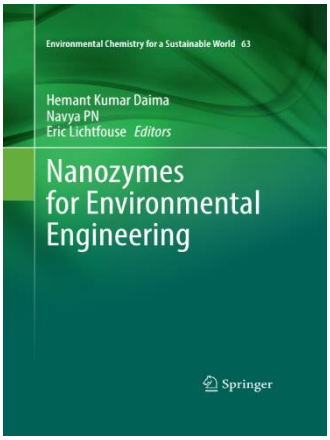
Highlights on journal/book covers



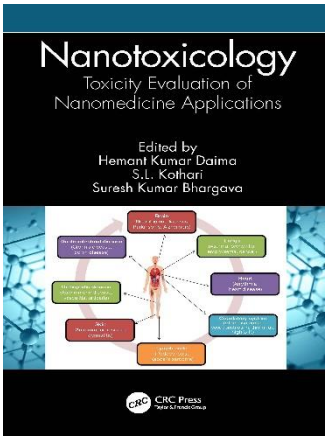
2018 –Book cover



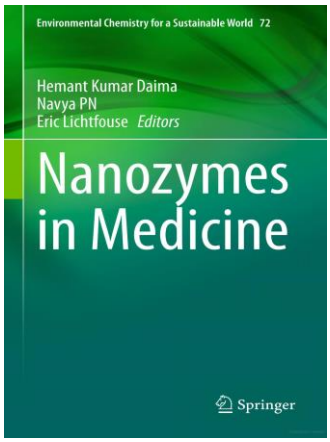
2020 – Lead editor



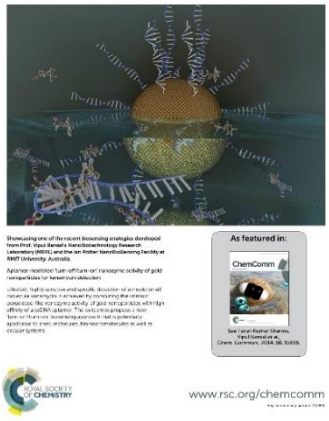
2021 – Lead editor



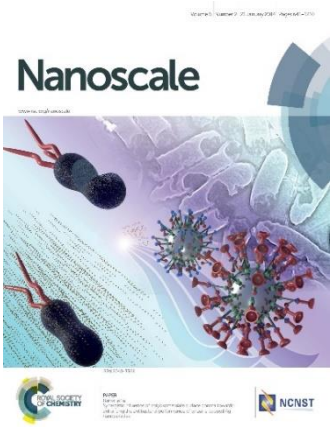
2023 – Lead editor



2023 – Lead editor

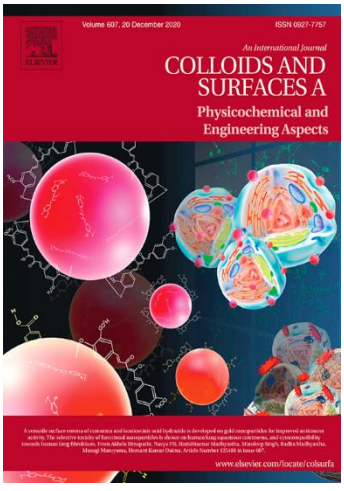


2014 – Chem Comm

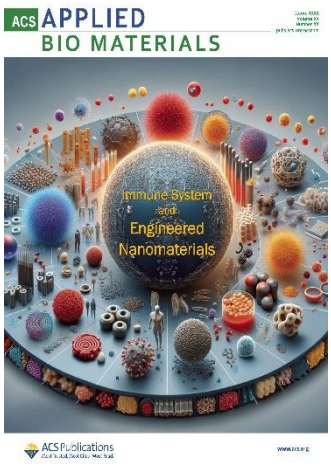


2014 – Nanoscale

2019 – Guest editor



2020 – Colloids Surf



2024 – ACS Appl. Bio Mater.

Government of Victoria published PhD journey and research activities of Hemant Kumar Daima, 2013.

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A gold step forward in healthcare

In the laboratories of RMIT University's Advanced Materials and Industrial Chemistry Group in Melbourne, Hemant Daima is pursuing his PhD that involves synthesising very small particles of precious metals such as gold, silver and platinum, for use in healthcare.

This new field of nanobiotechnology draws together expertise from a wide range of scientific disciplines to develop new nanostructures that can help improve drug delivery, gene delivery, cancer treatment and other health tools.

"I could not dream of a better research group to work with in the field of nanobiotechnology," Mr Daima said.

"Very few groups in the world are working in nanobiotechnology and I have the opportunity to work in a reputed group - so I have the advantages of gaining expertise in materials science, chemistry, biology and physical sciences, all available through a single platform."

Mr Daima's interest in nanobiotechnology began when he took a project on nanomaterials synthesis as part of his Master of Science degree at the University of Rajasthan in Jaipur, India, and decided he wanted to know more about life under the microscope.

"I found that this is a pretty interesting area with lots of opportunities," Mr Daima said.

"I decided to pursue my doctoral work in the field of nanobiotechnology to capitalise on my full potential, educational background and past research experience."

After being awarded a National Overseas Scholarship from the Government of India to pursue his doctoral studies overseas, he searched the world for opportunities in nanobiotechnology, eventually finding RMIT University.

The research project is examining ways to control the synthesis of gold, silver and platinum nanoparticles through green chemistry. Once these key inorganic materials are successfully synthesised, Mr Daima will examine ways they can be applied to different biological applications.

"I absolutely love my time at RMIT University. The University campus is located right in the heart of the city and I have been trained on the most sophisticated and advanced instruments in my research field," Mr Daima said.

"I found that Melbourne is the most vibrant and multicultural city in Australia. I had the opportunity to interact with students from different cultural backgrounds and nationalities. It is also a great place to experience festivals!"

Story highlight by RMIT University, Melbourne, Australia 2023

In the Spotlight: Dr. Hemant Kumar Daima

Doctor of Philosophy (PhD), Applied Biology & Nano-Biotechnology

Dr. Hemant Kumar Daima is currently Associate Professor at Central University of Rajasthan, Ajmer, India, currently working on the development of novel site-specific drug delivery strategies employing nanoparticles for effective cancer management and treatment.

His path abroad to RMIT, where he studied between 2009 – 2013, was something he had always strived to do.

"As a kid, I was fascinated about studying abroad and becoming a scientist," Hemant said.

DST, India selected our research to highlight its significance, 2022

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Home >> A drug delivery solution can improve cancer management and treatment

A drug delivery solution can improve cancer management and treatment

A novel site-specific drug delivery method using gold nanoparticles can improve management and treatment of cancer.

There are more than 200 different types of cancers known which are currently being treated through surgery, chemotherapy, and radiation therapy. Many of these cancers can be cured if detected early and treated effectively. However, the available treatments are time-taking, expensive, and trigger numerous other side-effects and the actual health benefits of the therapy do not reach to the cancer patients effectively.

Researchers at Amity University Rajasthan, Jaipur have developed therapeutic agents with the help of nano-biotechnological approaches using a unique solution of 'gold nanoparticles' that helps in improving the site-specific drug delivery for cancer disease management and its effective treatment.

Dr. Hemant Kumar Daima, Dr. Akhela Umapathi and Prof. S.L. Kothari from the Amity Centre for Nanobiotechnology and Nanomedicine (ACNN), have formulated 'gold nanoparticles' solution with a distinctive functional surface containing biomolecules and antibiotics for improved anticancer activity through selective generation of reactive oxygen species (ROS). The results have revealed that the appropriate surface corona on the gold nanoparticles was essential for effective cancer treatment in a selective manner.