

Anuvansh Sharma

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WORK EXPERIENCE

August 2016 – till date

PhD Candidate, Department of Materials Science and Engineering (IMA), Norwegian University of Science and Technology, Trondheim, Norway

- **Research Topic:** Hybrid Nanomaterials for Environmental and Biomedical Applications
- The study includes synthesis, functionalization and characterization of inorganic magnetic, polymeric and hybrid nanoparticles (NPs), and their potential applications in hydrological tracing as well as magnetic hyperthermia and targeted drug delivery.
- Different characterization techniques, such as **HRTEM, UV-Vis, DLS, XRD, EDX, EELS, FTIR, XRD, S(T)EM, VSM, SEM, TGA** to name a few, will be applied to analyse the viability of different nanosystems.
- **Research Groups:**
 - Functional materials and materials chemistry (FACET), IMA, NTNU
 - Ugelstad Laboratory, IKP, NTNU
 - NTNU Nanolab
- **Teaching Duties:**
 - Lecturer:** TMT4320 (Nanomaterials), Fall semester - 2018
 - Teaching Assistant:** TMT4320 (Nanomaterials), Fall semester - 2017
 - Lab Instrument Responsible:**
 - Thermo Scientific Evolution 220 UV-Visible Spectrophotometer
 - Tristar 3000 Surface area and porosity analyzer, 2017 - 2018
 - 3Flex 3500 Chemisorption Analyzer, 2017 – 2018
- **Corona Project, 2020:**
 - Research:** I've been part of the inventors' team designing and improving silica-beads synthesis, thereby upscaling the production of corona testing kits from 1 000 to 100 000 tests a day.
 - Management:** Within a team of over 10 personnel, I'm heading the *Quality* department responsible for characterization and quality maintenance, making sure the products leaving the production line meet appropriate standards before dispatching.

July 2012 – July 2014

Executive Process Engineer, Larsen & Toubro Limited, Mumbai, India

- **Engineering and Design:** Carried out designing of Product Mixers, Process Piping and Plant Layout. Worked with designing of heat exchangers, reformers columns, fire water networks and pumps for crude oil reforming units.
- **Commissioning and Project Execution:** Performed Commissioning activities for the Hydrogen Generation Unit, and the Synthesis Gas Generation Plant. Developed Planning and Scheduling reports as well as monitored Site Execution activities for Steam Boiler. Carried out Proposal and Cost Estimation activities for multiple project proposals.

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ACADEMIC BACKGROUND

August 2014 – June 2016

M.Sc. Chemical Engineering, Norwegian University of Science and Technology, Trondheim, Norway

- **Grade B**
 - Fabrication and Application of Nanomaterials, Chemical Methods for Synthesis and Characterization of Nanomaterial, Polymer Chemistry, Surface and Colloid Chemistry, Transport Phenomenon, Reaction Kinetics and Catalysis.
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August 2008 – May 2012

B.Tech Petroleum Engineering, University of Petroleum & Energy Studies, Dehradun, India

- **GPA 3.14/4 or 82.8%**
 - Material & Energy Flow Computation, Mass Transfer Operations, Fluid Mechanics, Heat Transfer Process, Chemical Thermodynamics, Instrumentation & Control, Applied Numerical Methods, Chemical Reaction Engineering, Petrochemical Processes, Petroleum Refining System Design, Petroleum Refining Process Modelling and Simulation.
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SCIENTIFIC PUBLICATIONS

- *“Magnetic Nanoparticles to Unique DNA Tracers – Effect of Functionalization on Physico-Chemical Properties”*. (2020) Submitted to Small.
 - *“Spectroscopic study of partially oxidized BN nanoscrolls induced by low frequency ultrasonic irradiation”*. (2020) Applied Surface Science.
 - Co-Author: *“Fabrication and Application of Nanomaterials”*, (2019). McGraw Hill Professional.
 - *“Synthesis, characterization and drug loading of multiresponsive p [NIPAm-co-PEGMA](core)/p [NIPAm-co-AAc](Shell) Nanogels with Monodisperse Size Distributions”*. (2018) Polymers.
 - *“The Influence of Differently Shaped Gold Nanoparticles Functionalized with NIPAM-Based Hydrogels on the Release of Cytochrome C”*. (2017) Gels.
 - *“Influence of polymer coating on release of l-dopa from core-shell Fe@ Au nanoparticle systems”*. (2017) Colloid and Polymer Science.
 - *“A robust method to calculate the volume phase transition temperature (VPTT) for hydrogels and hybrids”*. (2017) RSC Advances.
 - *“Incorporation of Fe@ Au nanoparticles into multiresponsive pNIPAM-AAc colloidal gels modulates drug uptake and release”*. (2016) Colloid and Polymer Science.
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ACADEMIC CONFERENCES

- Norwegian NanoSymposium, 2019: Oral Presentation – “DNA based hydrological tracer vehicles”.
- European Colloid and Interface Society, 2019: Poster – “Functionalization of Magnetic Nanoparticles with DNA for Water Management”.
- NKS Makro, 2018: Poster – “FunNano – Functional Nanomaterial for Multipurpose Applications”.
- European School on Magnetism, 2018: Poster – “Magneto-plasmonic Nanoparticles for Biomedical

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Applications”.

- Cluster-Surface Interaction Workshop 2018: Poster – “Magneto-plasmonic Nanoparticles for Biomedical Applications”.
- International Conference on Nanoscience, Nanotechnology and Nanobiotechnology, 2017: Poster – “Magneto-plasmonic Hybrid Nanoparticles for Biomedical Applications”.
- Kyoto International Forum for Environment and Energy, 2017: Poster – “Magnetophoresis Method for Magneto-Plasmonic Nanoparticle Assembly”.
- Nano@NTNU Symposium, 2015: Poster – “Modelling the Swelling Collapse Behaviour of Nano Systems Showing Phase Transition”.
- International Conference on Nanotechnology and Biotechnology, 2016, Melbourne. Co-author for a conference topic; Controlling the Release of Cyt C and L- Dopa from pNIPAM-AAc Nanogel Based Systems. Presenter; Sulalit Bandyopadhyay.

PERSONAL SKILLS

Analytical equipment

Dynamic light scattering (DLS)

Thermo gravimetric analysis (TGA)

Energy-dispersive X-ray spectroscopy (EDS)

Scanning transmission electron microscopy S(T)EM

High resolution transmission electron microscopy (HRTEM) Nanosight

Atomic force microscopy (AFM)

X-ray diffraction spectroscopy (XRD)

UV-Visible spectrophotometry (UV-Vis)

Fourier transform IR spectroscopy (FTIR)

Computer Skills

Sigma plot (good command)

Microsoft Office (excellent command)

MATLAB (intermediate knowledge)

Adobe: Lightroom Classic and CC, Premier Pro, After Effects, Photoshop, Illustrator

Language

English (mother tongue)

Norwegian (basic knowledge)

Hindi (mother tongue)

PERSONAL INTERESTS AND VOLUNTEERING

- Cricket coach for kids (aged 7-12 years) at Biralee International School, Trondheim, Norway.
- Cricket batsman with the NTNU’s cricket team.
- Board games, cooking, travelling, swimming, photography and videography.