

Suchetan Pal, PhD

*Indian Institute of Technology Bhilai
Department of Chemistry
GEC Campus, Sejbahar
Raipur 492015, Chhattisgarh, India*

*Email: suchetanp@iitbhilai.ac.in
Phone: +916266274962
Web: spalbionanolab.com*

PROFESSIONAL EXPERIENCE

Indian Institute of Technology-Bhilai, CG, India
Assistant Professor, Department of Chemistry, 2018–present

Memorial Sloan Kettering Cancer Center, New York, NY
NIH Postdoctoral Fellow, 2015– 2018
Advisor: Prof. Moritz Kircher

Columbia University, New York, NY
NSF Postdoctoral Fellow, 2013– 2015
Advisor: Prof. Oleg Gang

EDUCATION

Arizona State University, Tempe, AZ., PhD in Chemistry, December 2012
Dissertation title: “DNA directed self-assembly of plasmonic nanoparticles.”
Dissertation advisor: Prof. Yan Liu and Prof. Hao Yan

Indian Institute of Technology-Kanpur, M. Sc in Chemistry May 2008
Dissertation title: “: Synthesis and characterization of novel cyclic bis-carboxylate Te(IV) compounds.”
Dissertation advisor: Prof. V. Chandrasekhar.

Jadavpur University, Kolkata, India, B. Sc in Chemistry May 2006

FELLOWSHIPS AND AWARDS

Hargovind Khorana Young Innovative Biotechnologist Award-2019 by DBT, GOI.

INSPIRE Faculty award by DST, GOI July 2016 (not availed).

Eyring memorial award for best research scholar in the year 2011 by Department of Chemistry and Biochemistry, Arizona State University.

National Eligibility Test for Junior Research fellowship and shortlisted for interview of prestigious Shyamaprasad Mukherjee Memorial Scholarship in India (top 1%) (2008).

Selected for **Summer Research Fellowship Program (SRFP-2007)** by Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore.

Ranked 13 in **Joint Admission Test for MSc (JAM)** amongst 4000 candidates in India.

PUBLICATIONS

Published in peer-reviewed journals:

19. Gold/alpha-lactalbumin nanoprobes for the imaging and treatment of breast cancer. Jiang Yang, Tai Wang, Lina Zhao, Vinagolu Rajasekhar, Suhasini Joshi, Chrysafis Andreou, Suchetan Pal, Hsiao-ting Hsu, Hanwen Zhang, Ivan Cohen, Ruimin Huang, Ronald Hendrickson, Matthew Miele, Wenbo Pei, Matthew Brendel, John Healey, Gabriela Chiosis, Moritz Kircher. **Nature Biomedical Engineering** 2020, 4, 686–703.

* Appeared on cover page of July 2020 issue.

18. DNA-enabled rational design of fluorescence-Raman bimodal nanoprobes for cancer imaging and therapy. Suchetan Pal, Angana Ray, Chrysafis Andreou, Yadong Zhou, Tatini Rakshit, Marek Wlodarczyk, Ricardo Toledo-crow, Naxhije Berisha, Jiang Yang, Hsiao-Ting Hsu, Anton Oseledchyk, Jagannath Mondal, Shengli Zou, Moritz Kircher. **Nature Communications**. 2019, 1926, DOI: 10.1038/s41467-019-09173-2.

17. Surface-enhanced Resonance Raman Scattering Nanoprobe Ratiometry for Detecting Microscopic Ovarian Cancer via Folate Receptor Targeting. Chrysafis Andreou, Anton Oseledchyk, Suchetan Pal, Moritz F. Kircher. **J. Vis. Exp.** 2019, (145), e58389, doi:10.3791/58389.

16. MUC1 aptamer targeted SERS nanoprobes. Suchetan Pal, Stefan Harmsen, Anton Oseledchyk, Hsiao-Ting Hsu, Moritz Kircher. **Advanced Functional Materials** 2017, 27(32), 1606632.

15. Programming transformations of nanoparticle superlattices. Yugang Zhang, Suchetan Pal, Babji Srinivasan, Thi Vo, Venkat Venkatasubramanian, Sanat Kumar, Oleg Gang, **Nature Materials**, 2015, 14, 840-847.

14. Stoichiometric control of DNA-grafted colloid self-assembly. Thi Vo, Venkat Venkatasubramanian, Sanat Kumar, Babji Srinivasan, Suchetan Pal, Yugang Zhang, Oleg Gang, **PNAS**, 2015, 112, 4982-4987.

13. Dynamic tuning of DNA-nanoparticle superlattices by molecular intercalation of double helix. Suchetan Pal, Yugang Zhang, Sanat Kumar, Oleg Gang, **J. Am. Chem. Soc.** 2015, 137, 4030–4033.

* Highlighted in JACS website.

12. Hierarchical assembly of plasmonic nanostructures using virus capsid scaffolds on DNA origami templates. Debin Wang, Stacy Capehart, Suchetan Pal, Minghui Liu, Lei Zhang, P. James Schuck, Yan Liu, Hao Yan, Matthew B. Francis, James J. De Yoreo, **ACS Nano**, 2014, 8 (8), 7896-7904.

11. Quantum efficiency modification of organic fluorophores using gold nanoparticles on DNA origami scaffolds. Suchetan Pal, Palash Dutta, Haining Wang, Shengli Zou, Hao Yan, Yan Liu, **J. Phys. Chem. C**. 2013, 117(24), 12735-12744.

10. DNA functionalization of colloidal II–VI semiconductor nanowires for multiplex nanoheterostructures. Zhengtao Deng, Suchetan Pal, Anirban Samanta, Hao Yan, Yan Liu. **Chem. Sci.** 2013, 4, 2234-2240.

9. DNA gridiron nanostructures based on four-arm junctions. Dongran Han, Suchetan Pal, Yang Yang, Suoxing

Jiang, Jeanette Nangreave, Yan Liu, Hao Yan, **Science** 2013, 339, 1412-1215.

8. DNA directed self-assembly of anisotropic plasmonic nanostructures. Suchetan Pal, Zhengtao Deng, Haining Wang, Shengli Zou, Yan Liu, Hao Yan, **J. Am. Chem. Soc.** 2011, 133, 17606–17609.

7. Site specific synthesis and in-situ immobilization of fluorescent silver nanoclusters on DNA nanoscaffolds using Tollens reaction. Suchetan Pal, Reji Varghese, Zhengtao Deng, Zhao Zhao, Ashok Kumar, Hao Yan, Yan Liu, **Angew. Chem. Int. Ed.** 2011, 50, 4176 –4179.

6. DNA origami with complex curvatures in three-dimensional space. Dongran Han, Suchetan Pal, Jeanette Nangreave, Zhengtao Deng, Yan Liu, Hao Yan, **Science**. 2011, 332, 342-346.

* Featured as cover story of the April 15 issue of Science.

*This work was highlighted by National Science Foundation news release with video story. (http://www.nsf.gov/news/news_summ.jsp?cntn_id=119245&org=NSF&from=news)

*This work was highlighted by Nature Methods.

5. Folding and cutting DNA into reconfigurable topological nanostructures. Dongran Han, Suchetan Pal, Yan Liu, Hao Yan, **Nat. Nanotech.** 2010, 5, 712-717.

* Appeared on cover page of October 2010 issue.

4. DNA origami directed self-assembly of discrete silver nanoparticle architectures. Suchetan Pal, Zhengtao Deng, Baoquan Ding, Hao Yan, Yan Liu, **Angew. Chem. Int. Ed.** 2010, 49, 2700-2704. (VIP paper)

3. Stable silver nanoparticle-DNA conjugates for directed self-assembly of core-satellite silver-gold nanoclusters. Suchetan Pal, Jaswinder Sharma, Hao Yan and Yan Liu, **Chem Commun (Camb)**. 2009, 40, 6059-6061.

2. A bimetallic pillared-layer metal–organic coordination framework with a 3D biporous structure. Tapas Kumar Maji, Suchetan Pal, K. L Gurunatha, A. Govindaraj and C. N. R. Rao, **Dalton Trans.**, 2009, 23, 4426 – 4428.

1. Construction of bi-functional inorganic–organic hybrid nanocomposites. Suchetan Pal, Dinesh Jagadeesan, K. L. Gurunatha, M. Eswaramoorthy and Tapas Kumar Maji, **J. Mater. Chem.**, 2008, 18, 5448 – 5451.

Book Chapters and Reviews:

1. Molecular imaging in nanotechnology and theranostics. Chrysafis Andreou, Suchetan Pal, Lara Rotter, Jiang Yang, Moritz Kircher. **Molecular Imaging and Biology**. 2017,19, 363.

2. DNA-based nanoscale self-assembly. Wenyan Liu, Yugang Zhang, Suchetan Pal, Oleg Gang. **Proceedings of the International School of Physics "Enrico Fermi"**. Volume 193: Soft Matter Self-Assembly. Pages: 331-382. DOI: 10.3254/978-1-61499-662-0-331.

PATENTS

1. METHODS FOR ISOTHERMAL MOLECULAR AMPLIFICATION WITH NANOPARTICLE-BASED REACTIONS. SUCHETAN PAL, OLEG GANG. US PATENT APPLICATION: 15/983,804, 2018.

SELECTED ORAL PRESENTATIONS

1. Presented poster entitled: "DNA directed self-assembly of discrete silver nanoparticle and silver-gold nanoparticle architectures." at 7th Annual Conference on FOUNDATIONS OF NANOSCIENCE: SELF-ASSEMBLED ARCHITECTURES AND DEVICES (FNANO10). Snowbird, Utah. April 27 - 30, 2010.
2. Presented poster entitled: "DNA origami scaffolded discrete gold nanorod architectures." 8th Annual Conference on FOUNDATIONS OF NANOSCIENCE: SELF-ASSEMBLED ARCHITECTURES AND DEVICES (FNANO11). Snowbird, Utah. April 11 - 15, 2011.
3. Oral Presentation entitled: "Photonic interaction between cyanine dyes with gold Nanoparticle on DNA Scaffold". The Biodesign Institute, Arizona State University. December 2, 2011.
4. Oral Presentation entitled: "DNA directed self-assembly of plasmonic nanoparticles: towards radiative decay engineering of fluorophores" Center for Functional Nanomaterials. Brookhaven National Lab. July 27, 2012.
5. Oral Presentation entitled: "DNA as a building material for plasmonic molecules" Department of Radiology, Memorial Sloan Kettering Cancer Center, NY. December 10, 2014.
6. Oral Presentation entitled: "MUC1 aptamer targeted SERS nanoprobe." 2016 World Molecular Imaging Congress (WMIC), New York, September 2016.
7. Oral Presentation entitled: "DNA Nanostructures: from self-assembly to cancer imaging." Inorganic and Physical Chemistry Division, Indian Institute of Science, Bangalore, India, November 17th, 2016.
8. Oral Presentation entitled: "DNA Nanostructures: from self-assembly to cancer imaging." Department of Chemistry, Indian Institute of Science Education and Research, Pune, India, November 21st, 2016.
9. Oral Presentation entitled: "DNA Nanostructures: from self-assembly to cancer imaging." Center for Advanced Materials, Indian Association for the Cultivation of Science, Kolkata, India, November 25th, 2016.
10. Oral Presentation entitled: "DNA Nanostructures: from self-assembly to cancer imaging." Department of Chemistry, National Institute of Science Education and Research, Bhubaneswar, India, December 5th, 2016.
11. Oral Presentation: "6 th World Congress on Nanomedical Sciences". January 9th 2019, Bigyan Bhawan, New Delhi, India.
12. Invited talk on "Development of Emerging Materials with DNA Molecule". Soft Matter Young Investigators' Meet (SMYIM), May 12-14, 2019, Shillong, India
13. Oral Presentation entitled: "Development of Emerging Materials with DNA Molecule". April 1st, Materials Research Center, Indian Institute of Science, Bangalore, India.
14. Invited talk on "DNA Enabled Design of Multimodal Nanoparticles for Cancer Theranostics" Nanobiotech 2019, New Delhi, 22nd November 2019.
15. Invited talk on "DNA Enabled Design of Multimodal Nanoparticles for Cancer Theranostics" Centre of BioSystems Science and Engineering (BSSE), Indian Institute of Science, Bangalore. 13th January 2020.
16. Invited talk on "DNA Enabled Design of Multimodal Nanoparticles for Cancer Theranostics" Nanobiotech 2019, New Delhi, 22nd November 2019.
17. Invited talk on "Cancer nanotechnology: Introduction, my personal journey and the future" RST Regional Cancer Hospital, Nagpur, 2nd February 2020.

SERVICE AND OUTREACH

Faculty in Charge- SPORTS and YOGA at IIT Bhilai: 2018-now

Faculty in Charge- Library Advisory Committee at IIT Bhilai: 2020-now

Member-Chemistry Laboratory Safety Committee

Member of World Molecular Imaging Society (WMIS).

Member of the American Chemical Society, New York Academy of Sciences.

Reviewer for various peer reviewed journals such as Ultramicroscopy, Analytical Chemistry, Nanotheranostics, etc.

