

Curriculum Vitae

Subho Dasgupta

PERSONAL INFORMATION

Surname: Dasgupta, **Name:** Subho
Date of birth: 09/06/1980 **Nationality:** Indian
Sex: Male **Marital status:** Married
Address: 3107, Prestige Kensington Gardens, Jalahalli, Bangalore: 560013
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EDUCATION

January 2006- Jun 2009	Ph. D. in <i>Materials science</i> at the Technical University Darmstadt (TUD), Germany
July 2003- June 2005	Master of Technology (M. Tech) in <i>Metallurgical and Materials Engineering</i> at Indian Institute of Technology, Kharagpur, India
July 1999- June 2003	Bachelor of Engineering (B.E.) Degree in <i>Metallurgical Engineering</i> at Jadavpur University, Kolkata, India

SCIENTIFIC CAREER

June-2022- Present	Associate Professor , Department of Materials Engineering, Indian Institute of Science (IISc)
June 2016-May 2022	Assistant Professor , Department of Materials Engineering, Indian Institute of Science (IISc)
August 2012-May 2016	Group Leader and Principal Investigator of the research program on “printed electronics from inorganic nanomaterials”, at Institute of Nanotechnology, Karlsruhe, Germany Institute of Technology (KIT), Germany
December 2013- May 2014	Visiting Scientist at Lawrence Livermore National Laboratory, California, USA
August 2009-July 2012	Post-doctoral Fellow at Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Germany

ACADEMIC DISTINCTIONS

- Awarded '*Summa cum Laude*', the highest grade for an outstanding Ph. D. thesis, 2009
- Awarded the '*Director's Gold medal*', from IIT Kharagpur for acquiring highest CGPA among the entire M. Tech students for the year 2005
- Awarded the '*Institute Silver Medal*', from IIT Kharagpur for acquiring highest CGPA in Metallurgical and Materials Engg. Dept. for the year 2005.
- Awarded the '*DAAD fellowship*', 2004
- National Scholarship at XIIth standard [(state rank: 85th among approx. 500,000 students)]
- National Scholarship at Xth standard [(state rank: 30th among approx. 700,000 students)]

RESEARCH INTEREST/FIELDS OF EXPERTISE

Electrochemistry, Electronic transport in nanomaterials, Printed electronics, Oxide electronics, Zero/one/two dimensional nanomaterials, Supercapacitors, Sensors, Memristors, Bulk monolithic graphene, Li-ion battery, Nanomagnetism

PRESENT WORKGROUP

PhDs: Divya Mitta, Devabharati Nehru, Jyoti Ranjan Pradhan, Sandeep Kumar Mondal, Sushree Sangeeta Priyadarshini, Mohammad Hadhi, Manvendra Singh, Md. Iyamot Ali, Aditi Ghosh, Siri Chandana Amarkonda.

Graduate/ Undergraduate: Nikhil Kumar Cherukupally, Santosh Kumar, Nikhil Choudhury

Research Assistant: Anirudh Varanasi, Suryansh Saxena, B. M. Swetha, Suryasree Ganeshan, Jagi Rout, Lakshmi Prakashan, Amrita Unnikrishnan, Sanjana Nigboor, Disha Bhattacharjee.

Post doc: Nithesh Chaurasia

COURSES TAUGHT

- (1) Masters level, 3 credit point, core course, 'Electronic Properties of Materials'.
- (2) Masters level, 4 credit point, elective course, 'Tunable Properties in Nanomaterials'.
- (3) Undergraduate lab course, 1 credit point, 'Functional properties of materials'.

ONGOING PROJECTS

- (1) **PI: Subho Dasgupta; Co-PI: Dipti Gupta**
NFC-based multi-sensor platform to monitor transportation and storage integrity of lifesaving pharmaceutical products; **Funding agency: IMPRINT-IIC (SERB)**, Funding Period 12/2019-12/2023, **Grant amount: 13.78 Million Lacs INR.**
- (2) **PI: Subho Dasgupta**
Printed 2D transition metal dichalcogenide transistors aiming at high mobility intra-flake transport; **Funding agency: STARS**, Funding Period 02/2020-02/2024, **Grant amount: 5 Million INR.**

COMPLETED PROJECTS

- (1) **PI: Subho Dasgupta; Co-PI: Horst Hahn**
Reversible ion intercalation based tuning of magnetism in bulk ferromagnets; Funding agency: **Deutsche Forschungsgemeinschaft (DFG)**, Funding period: 2015-2017
Grant amount: 385,000 Euro.
- (2) **PI: Horst-Hahn; Co-PI: Subho Dasgupta**
Virtual Institute on printed Electronics (VI-530) Printed electronics based on inorganic nanomaterials: From atoms to functional devices and circuits;
Funding agency: Helmholtz Association, Funding period: 2011-2016
Grant amount: 2.75 Million Euro.
- (3) **PI: Subho Dasgupta**
Printed organic/inorganic hybrid field-effect transistors and logics with superior mechanical reliability; **Funding agency: SERB**, Funding period: 03/2018-03/2021, **Grant amount: 8.7 Million INR.**
- (4) **PI: Subho Dasgupta (India); PI: Jasmin Aghassi Hagmann (Germany)**
Environmentally stable electrolyte-gated circuits and its application; **Funding agency: DST-DAAD**, Funding period: 04/2019-03/2021 **Grant amount: 1.52 Million INR.**
- (5) **PI: Subho Dasgupta**
Printed high performance micro-supercapacitor arrays; **Funding agency: ISRO-STC**, funding Period: 04/2019-03/2021, **Grant amount: 1.48 Million INR**

REVIEWING ACTIVITY

Regular reviewer of international interdisciplinary journals including 'Nature communication', 'Nature Reviews', 'Science Advances', 'Advanced Materials' 'Advanced Functional Materials', 'Advanced Energy Materials', 'Advanced Optical Materials' 'Advanced Electronic Materials', 'Advanced Materials Interfaces', 'Advanced Materials Technologies', 'Small', 'ACS Nano', 'Nano Letters', 'Journal of the American Chemical Society', 'Chemistry of Materials', 'ACS Applied Materials and Interfaces' 'Journal of Materials Chemistry A', 'Journal of Materials Chemistry C', 'Nanotechnology', 'Journal of Physics D: Applied Physics', 'Journal of Applied Physics', 'Physica Status Solidi', 'IEEE Journal of electron devices', 'Journal of Material Science & Engineering A and B etc.

JOURNAL PUBLICATIONS

1. M. Divya, N. Cherukupally, S. K. Gogoi, J. R. Pradhan, S. K. Mondal, M. Jain, A. Senyshyn and S. Dasgupta*, "Super flexible and high mobility inorganic/organic composite semiconductors for printed electronics on polymer substrates", *Adv. Mater. Technol.* (2023) 10130451
2. A. Varanasi, N. Devabharathi, M. Divya, S. K. Mondal, **S. Dasgupta***, "Printed and Room Temperature Processed Nanoparticulate VO₂ Thin Films towards Memristive Device Applications", *IEEE Journal on Flexible Electronics* (2023) 10130451 (invited)
3. N. Devabharathi, J. R. Pradhan, S. S. Priyadasini, **S. Dasgupta*** "Inkjet-printed narrow-channel mesoporous oxide based n-type TFTs and all-oxide CMOS electronics". *Adv. Mater. Interfaces* (2022) 2200949
4. M. Divya, J. R. Pradhan, S. S. Priyadasini, **S. Dasgupta***, "High operation frequency and strain tolerance of fully printed oxide thin film transistors and circuits on PET substrates". *Small* (2022) 2202891
5. J.R. Pradhan, M. Singh and **S. Dasgupta***, "Inkjet-Printed, Deep Subthreshold Operated Pseudo-CMOS Inverters with High Voltage Gain and Low Power Consumption", *Adv. Electron. Mater.* (2022) 2200528
6. S. S. Priyadasini, S. Saxena, J.R. Pradhan and **S. Dasgupta***, "Inkjet-printed transparent micro-supercapacitors with morphology tailored co-continuous mesoporous Mn₃O₄", *J. Mater. Chem. A* (2022)
7. M. Divya and **S. Dasgupta***, "Inkjet-printable and low-temperature curable Ag–Ag₂O mixed-phase conductive nanoink for flexible electronic applications", *Appl. Nanosci.* (2022)
8. S. K. Mondal, A. Biswas, J. R. Pradhan, S. Dasgupta*, "Inkjet-Printed MoS₂ Transistors with Predominantly Intraflake Transport", *Small Methods* (2021)
9. N. Devabharathi, A. M. Umarji, **S. Dasgupta***, "Fully inkjet-printed mesoporous SnO₂ based ultra-sensitive gas sensors for trace amount NO₂ detection" *ACS Appl. Mater. Interfaces* (2021)
10. M. M. Greve, B. Das, I. Issac, R. Witte, D. Wang, R. Kruk, H. Hahn, **S. Dasgupta***, "Electric-potential-induced complete control of magnetization in MnZnSb metallic ferromagnets" *Adv. Elect. Mater.* (2021)
11. N. Cherukupally, M. Divya, **S. Dasgupta***, "A comparative study on printable solid electrolytes toward ultra-high current and environmentally stable thin film transistors" *Adv. Elect. Mater.* (2020)

12. N. Devabharathi, R. Parasuraman, A. M. Umarji, **S. Dasgupta***, "Ultra-high response ethanol sensors from fully printed co-continuous mesoporous oxide thin films" *J. Alloys & Compds.* (2020)
13. N. Devabharathi, S. K. Mondal, **S. Dasgupta***, "Inkjet-printed co-continuous mesoporous oxides for high-current power transistors", *Nanoscale* (2019), 11, 13731
14. M. Divya, S. Sethuraman, N. Devabharathi, S. K. Mondal, **S. Dasgupta***, "Low temperature processing of field-effect transistors from sublimating-stabiliser derived oxide nanodispersions", *Adv. Elect. Mater.* 5 (2019) 1800764
15. S. K. Behera, N. Devabharathi, J. R. Pradhan, S. K. Mondal, **S. Dasgupta***, "Concurrent Subthermionic and Strong Thermionic Transport in Inkjet Printed Indium Zinc Oxide/Silver Hybrid Channel Field Effect Transistors", *Adv. Elect. Mater.* 5 (2019) 1900401
16. S. K. Mondal, N. Devabharathi, **S. Dasgupta***, "Effect of semiconductor surface homogeneity and interface quality on electrical performance of inkjet-printed oxide field-effect transistors", *Nanotechnology* 30 (2019) 435201
17. V. Agarwal, N. Varghese, **S. Dasgupta**, A. K. Sood, K. Chatterjee, "Engineering a 3D MoS₂ foam with keratin exfoliated nanosheets" *Chem. Eng. Journal*, 374 (2019) 254
18. G. C. Marques, F. vonSeggrem, S. Dehm, B. Breitung, H. Hahn, **S. Dasgupta**, M. B. Tahoori, J. Aghassi-Hagmann, "Influence of humidity on the performance of composite solid polymer electrolyte-gated field-effect transistors and circuits" *IEEE Trans. Elect. Dev.* (2019)
19. B. K. Sharma, A. Stoesser, S. K. Mondal, S. K. Garlapati, M. H. Faway, V. S. K. Chakravadhanula, R. Kruk, H. Hahn, **S. Dasgupta**, "High-performance all-printed amorphous oxide FETs and logics with electronically compatible electrode/ channel interface", *ACS Appl. Mater. Interfaces* 10 (2018) 22408
20. S. K. Garlapati, M. Divya, B. Breitung, R. Kruk, H. Hahn, **S. Dasgupta*** "Printed electronics based on inorganic semiconductors: from processes and materials to devices", *Adv. Mater.* 30 (2018) 1707600 (**Invited Review**)
21. S. K. Garlapati, G. C. Marques, J. S. Gebauer, S. Dehm, M. Bruns, M. Winterer, M. B. Tahoori, J. Aghassi-Hagmann, H. Hahn, **S. Dasgupta*** "High performance printed oxide field-effect transistors processed using photonic curing", *Nanotechnology* 29 (2018) 235205
22. G. C. Marques, S. K. Garlapati, S. Dehm, **S. Dasgupta**, H. Hahn, M. Tahoori, J. Aghassi-Hagmann, "Digital power and performance analysis of inkjet printed ring oscillators based on electrolyte-gated oxide electronics", *Appl. Phys. Lett.* 111 (2017) 102103
23. S. K. Garlapati, J. S. Gebauer, S. Dehm, M. Bruns, M. Winterer, H. Hahn, **S. Dasgupta***, "Room Temperature Processing of Printed Oxide FETs using Ultra-violet Photonic curing" *Adv. Elect. Mater.* 3 (2017) 1600476
24. T. T. Baby, M. Rommel, F. von Seggern, P. Friederich, C. Reitz, S. Dehm, C. Kübel, W. Wenzel, H. Hahn, **S. Dasgupta***, "Sub-50 nm Channel Vertical Field-Effect Transistors using Conventional Ink-Jet Printing" *Adv. Mater.* 29 (2017) 1603858
25. A. Molinari, P. Leufke, C. Reitz, **S. Dasgupta**, R. Witte, R. Kruk, H. Hahn, "Hybrid supercapacitors for reversible control of magnetism" *Nature Communications* (2017)
26. G. C. Marques, S. K. Garlapati, D. Chatterjee, S. Dehm, **S. Dasgupta**, J. Aghassi, M. B. Tahoori, "Electrolyte-Gated FETs Based on Oxide Semiconductors: Fabrication and Modeling", *IEEE Trans. Elect. Dev.*, 64 (2017) 279

27. M. Häming, T.T. Baby, S.K. Garlapati, B. Krause, H. Hahn, **S. Dasgupta**, L. Weinhardt, C. Heske “The effect of NaCl on room-temperature-processed indium oxide nanoparticle thin films for printed electronics” *Appl. Surf. Sci.* 396 (2017) 912
28. **S. Dasgupta***, B. Das, Q. Li, D. Wang, T. T. Baby, S. Indris, M. Knapp, H. Ehrenberg, K. Fink, R. Kruk, H. Hahn, “Toward On-and-Off Magnetism: Reversible Electrochemistry to Control Magnetic Phase Transitions in Spinel Ferrites” *Adv. Funct. Mater.*, 26 (2016) 7507
29. F. von Seggern, I. Keskin, E. Koos, R. Kruk, H. Hahn, **S. Dasgupta***, “Temperature dependent performance of printed field-effect transistors with solid polymer electrolyte gating” *ACS Appl. Mater. Interfaces*, 8 (2016) 31757
30. A. Stoesser, F. von Seggern, S. Purohit, B. Nasr, R. Kruk, S. Dehm, D. Wang, H. Hahn, **S. Dasgupta***, Facile fabrication of electrolyte-gated single-crystalline cuprous oxide nanowire field-effect transistors, *Nanotechnology*, 27 (2016) 415205
31. J. Liu, W. Zhou, J. Liu, Y. Fujimori, T. Higashino, H. Imahori, X. Jiang, J. Zhao, T. Sakurai, Y. Hattori, W. Matsuda, S. Seki, S. K. Garlapati, **S. Dasgupta**, E. Redel, L. Sun, C. Woll “A new class of epitaxial porphyrin metal-organic framework thin films with extremely high photocarrier generation efficiency: promising materials for all-solid-state solar cell” *J. Mater. Chem. A*, 4 (2016) 12739
32. S. K. Garlapati, T. T. Baby, S. Dehm, M. Hammad, V. S. K. Chakravadhanula, R. Kruk, H. Hahn, **S. Dasgupta*** “Inkjet-printed CMOS electronics from oxide semiconductors” *Small* 11 (2015) 3591–3596
33. T. T. Baby, S. K. Garlapati, S. Dehm, M. Häming, R. Kruk, H. Hahn, **S. Dasgupta*** “A General Route towards Complete Room Temperature Processing of Printed and High Performance Oxide Electronics” *ACS Nano* 9 (2015) 3075
34. **S. Dasgupta***, B. Das, M. Knapp, R. A. Brand, H. Ehrenberg, R. Kruk, H. Hahn, “Intercalation-driven reversible control of magnetism in bulk ferromagnets” *Adv. Mater.* 26 (2014) 4639
35. **S. Dasgupta***, D. Wang, C. Kübel, H. Hahn, T. F. Baumann, J. Biener, “Dynamic Control Over Electronic Transport in 3D Bulk Nanographene via Interfacial Charging” *Adv. Funct. Mater.* 24 (2014) 3494
36. S. K. Garlapati, N. Mishra, S. Dehm, R. Hahn, R. Kruk, H. Hahn, **S. Dasgupta***, “Electrolyte-gated, high mobility printed inorganic oxide transistors for metal halides” *ACS Applied Materials and Interfaces* 5 (2013) 11498.
37. B. Nasr, D. Wang, Z. Zhao-Karger, R. Kruk, H. Hahn, **S. Dasgupta***, “Temperature tolerance study of high performance electrochemically gated SnO₂ nanowire field-effect transistors”, *J. Mater. Chem. C* 1 (2013) 2534
38. B. Nasr, D. Wang, R. Kruk, H. Rösner, H. Hahn, **S. Dasgupta***, “High-speed, low voltage and environmentally stable operation of electrochemically-gated zinc oxide nanowire field-effect transistors” *Adv. Funct. Mater.* 23 (2013) 1750
39. J. Biener, **S. Dasgupta**, L.-H. Shao, D. Wang, M. A. Worsley, A. Wittstock, J. R. I. Lee, M. M. Biener, C. Orme, S. O. Kucheyev, B. C. Wood, T. M. Willey, A. V. Hamza, J. Weissmüller, H. Hahn, T. F. Baumann, “Macroscopic 3D Nanographene with Dynamically Tunable Bulk Properties” *Adv. Mater.* 24 (2012) 5083
40. **S. Dasgupta***, G. Stoesser, N. Schweikert, R. Hahn, S. Dehm, R. Kruk, H. Hahn, “Printed and electrochemically-gated, high-mobility, inorganic oxide nanoparticle FETs and their suitability in high-frequency applications”, *Adv. Funct. Mater.* 22 (2012) 4909

41. **S. Dasgupta***, R. Kruk, N. Mechau, H. Hahn, "Ink-jet printed, high-mobility inorganic oxide field-effect transistors processed at room temperature" *ACS Nano* 5 (2011) 9628
42. B. Nasr, **S. Dasgupta**, D. Wang, N. Mechau, R. Kruk, H. Hahn, "Electrical resistivity of nanocrystalline Al-doped zinc oxide films as a function of Al content and the degree of its segregation at the grain boundaries" *J. Appl. Phys.* 108 (2010) 103721
43. Y. Ivanisenko, A. Darbandi, **S. Dasgupta**, R. Kruk, H. Hahn "Bulk nanostructured materials: non-mechanical synthesis" *Adv. Engg. Mater.* 12 (2010) 666
44. **S. Dasgupta***, M. Lukas, K. Dössel, R. Kruk, H. Hahn, "Tuneable electron mobility in surface-charged Indium Tin Oxide thin films" *Phys. Rev. B* 80 (2009) 085425.
45. **S. Dasgupta***, S. Dehm, R. Kruk, H. Hahn, "Electrochemically-Gated Field-Effect Transistor with Indium Tin Oxide Nanoparticles as Active Layer" *Acta physica polonica*, 115 (2009) 473
46. **S. Dasgupta***, S. Gottschalk, R. Kruk, H. Hahn, "A nanoparticulate indium tin oxide field-effect transistor with solid electrolyte gating" *Nanotechnology*, 19 (2008) 435203
47. **S. Dasgupta***, R. Kruk, D. Ebke, A. Hütten, C. Bansal, H. Hahn, "Electric field induced reversible tuning of resistance of thin gold films" *J. Appl. Phys.*, 104 (2008) 103707
48. A. Castrup, **S. Dasgupta**, T. Scherer, H. Rösner, J. Ellrich, R. Kruk, M. Ghafari, H. Hahn, A. Hütten, D. Ebke, N.-N. Liu, I. Ennen, A. Thomas, J. Schmalhorst, G. Reiss, "Half-metallic {Co₂MnSi/Co₂FeSi} multilayered Heusler electrodes in magnetic tunnel junctions" *J. Magn. Mater.* 310 (2007) 2009
49. **S. Dasgupta**, J. Das, J. Eckert, I. Manna, "Influence of environment and grain size on magnetic properties of nanocrystalline Mn-Zn ferrite" *J. Magn. Mater.* 306 (2006) 9
50. **S. Dasgupta**, K.B. Kim, J. Ellrich, J. Eckert, I. Manna, "Mechano-chemical synthesis and characterization of microstructure and magnetic properties of nanocrystalline Mn_{1-x}Zn_xFe₂O₄" *J. Alloys & Compds.* 424 (2006) 13

CONFERENCE PUBLICATIONS

1. S. S. Priyadarsini, S. Dasgupta "Room temperature fabrication of MnO₂-based printable and flexible microsupercapacitors" IEEE International Conference on Emerging Electronics (ICEE) (2022)
2. M. Singh, J. R. Pradhan, S. Dasgupta "Inkjet-printed a-IGZO/Ag Schottky diodes with > 10⁶ rectification ratio" IEEE International Conference on Emerging Electronics (ICEE) (2022)
3. S. K. Mondal, S. Dasgupta "Inkjet-printed WS₂ and MoSe₂ transistors with edge-FET architecture and near-vertical electronic transport" IEEE International Conference on Emerging Electronics (ICEE) (2022)
4. N. Devabharathi, J. R. Pradhan and S. Dasgupta, "Inkjet-printed mesoporous indium oxide-based near-vertical transport thin film transistors and pseudo-CMOS inverters," IEEE International Conference on Emerging Electronics (ICEE) (2022)
5. N. Devabharathi, S. K. Mondal, J. R. Pradhan, S. Dasgupta, "Fully printed vertical transport edge FETs for high power oxide electronics", 4th IEEE Electron Devices Technology & Manufacturing Conference (EDTM) (2020), Penang, Malaysia
6. G.C. Marques, S.K. Garlapati, S. Dehm, S. Dasgupta, J. Aghassi, M. B. Tahoori "Compact modeling of inkjet printed, high mobility, electrolyte-gated transistors", 55 MPC workshop, IEEE Solid-State Circuit Society (2016)

BOOK CHAPTER

1. A Molinari, **S Dasgupta**, R Kruk, H Hahn, “Magnetolectric Effect Driven by Reversible Surface Chemistry and Bulk Ion-Exchange” *Functional Nanostructures and Sensors for CBRN Defense and Environmental Safety and Security*, (Springer, Dordrecht, 2020)
2. T. T. Baby, G. C. Marques, F. Neuper, S. A.k Singaraju, S. Garlapati, F. von Seggern, R. Kruk, **S. Dasgupta**, B. Sykora, B. Breitung, P. A. Sukkurji, U. Bog, R. Kumar, H. Fuchs, T. Reinheimer, M. Mikolajek, J. R Binder, M. Hirtz, M. Ungerer, L. Koker, U. Gengenbach, N. Mishra, P. Gruber, M. Tahoori, J. A. Hagmann, H.von Seggern, H. Hahn “Printing technology for integration of electronic devices and sensors” *Functional Nanostructures and Sensors for CBRN Defense and Environmental Safety and Security*, (Springer, Dordrecht, 2020)
3. **S. Dasgupta**, R. Kruk, H. Hahn, “Electronically tunable nanostructures: metals and conducting oxides” *Nanoscale Phenomena: Fundamentals and Applications* (Springer, Berlin, 2009) Chapter 12.

PATENTS ISSUED

1. “Composite semiconductor precursor solution and method for fabricating electronic device using the composite semiconductor precursor solution” **Subho Dasgupta**, Divya Mitta, Venkat Nikhil Cherukupally, Indian Patent: 202141044657, Granted on 29/05/2023
2. “ Silver Nano-ink composition comprising mixed-phase capped nanoparticles, methods of preparation, KIT and applications thereof” **Subho Dasgupta**, Divya Mitta, Indian Patent: 202141003193, Granted on: 16/05/2023
3. “Electrochemically-gated field-effect transistor, method for its manufacture, its use, and electronics comprising the said field-effect transistor”, **Subho Dasgupta**, Horst Hahn, EP 13401025.5; Granted on: 13.02.2019
4. “Composite solid polymer electrolyte, its use, and printed electronics manufactured by means of said composite solid polymer electrolyte”; **Subho Dasgupta**, Horst Hahn, Anna Stösser, EP 12001047.5; Granted on 20.10.2015
5. “Electrochemically-gated one-dimensional nanostructure channel field-effect transistors and method for its manufacture”; **Subho Dasgupta**, Horst Hahn, Babak Nasr, US 8,927,967 B2; Granted on: 06.01.2015
6. “Nanoporous carbon based tunable resistor / transistor”; Theodore F. Baumann, Jürgen Biener, **Subho Dasgupta**, Horst Hahn, US 8,703,523 B1; Granted on: 22.04.2014

PATENTS FILED

1. “High power printed transistors and methods thereof” **Subho Dasgupta**, Nehru Devabharathi, Sandeep Kumar Mondal, Indian Patent: 201941006505, Filed on: 19/02/2020
2. “High power printed transistors and methods thereof” **Subho Dasgupta**, Nehru Devabharathi, Sandeep Kumar Mondal, PCT: PCT/IB2020/051360, Filed on: 19/02/2020
3. “Verfahren zur Herstellung einer elektrisch leitfähigen Verbindung auf einem Substrat, mikroelektronisches bauelement und Verfahren” Uwe Bog, Michael Hirtz, **Subho Dasgupta**, Ben Breitung, Horst Hahn, Harald Fuchs, Gabriel Marquez, Jasmin Aghassi, German Patent: 102018214367.6, Filed On: 24.08.2018
4. “Dielectric/Ferroelectric gated bulk field-effect transistor using vertical device architecture” **Subho Dasgupta**, Horst Hahn, Tessa Theres Baby, Christian Reitz, Falk vonSeggern, EP patent 16175959.2; Filed on: 23.06.2016
5. “Reversible alteration of a magnetic state of a material” **Subho Dasgupta**, Horst Hahn, Robert Kruk, Bijoy Kumar Das, EP Patent 13172431.2; Filed on: 18.06.2013
6. “Electrochemically-gated one-dimensional nanostructure channel field-effect transistors and method for its manufacture”; **Subho Dasgupta**, Horst Hahn, Babak Nasr, EP 12001746.2; Filed on: 14.03.2012

7. “Electrochemically-gated transistor and a method for its manufacture”; **Subho Dasgupta**, Horst Hahn, Robert Kruk, WO PCT/EP2011/003878 Filed on: 03.08.2011
8. “Electrochemically-gated transistor and a method for its manufacture”; **Subho Dasgupta**, Horst Hahn, Robert Kruk, EP Patent 10008902.8; Filed on: 27.08.2010

INVITED LECTURES

1. ‘Printed 2D electronics with predominant intra-flake transport’, **11th ICMAT**, Singapore, June 2023
2. ‘Printed 2D electronics with predominant intra-flake transport’, 37th Aachen **Graphene Center Seminar**, RWTH Aachen, Germany, June 2023
3. ‘Inkjet-printed super-flexible oxide electronics and its application at sensor interfaces’ **CM@S lecture** at University of Wuppertal, Germany, May 2023
4. ‘Low temperature curable silver nanoink for PET/paper/glass/textile substrates’ **1st Silver conference**, Jaipur, India, April 2023
5. ‘Low temperature processed printed electronics based on 2D semiconductors’ **IUMRS 2022**, IIT Jodhpur, India, December 2022
6. ‘Fully-printed, ultra-flexible and low temperature processed oxide electronics’ **ICEE 2022**, Bangalore, India, December 2022
7. ‘Printed, oxide-based unipolar pseudo-CMOS electronics’ **IFETC 2022**, Qingdao, China, August 2022
8. ‘Fully printed, ultra-flexible and low temperature processed oxide electronics’ SCDT Flex-E center webinar, IIT Kanpur, April 2022
9. ‘Emerging Electronic Materials and Devices: Flexible and Printed Electronics’ AICTE training and learning academy (ATAL) **FDP lecture, Ramaiah Institute of technology**, Bangalore, July 2021
10. ‘Fully printed vertical transport edge FETs for high power oxide electronics’ **EDTM 2020**, Penang Malaysia, March 2020
11. ‘Printed, flexible and high power FETs and circuits’ **FlexEV 2020**, Manipal University Jaipur, March 2020
12. ‘Printed high power and flexible FETs based on organic/ inorganic hybrid semiconductors’ **Workshop on 3D and heterogeneous system integration**, IISc, January 2020
13. ‘Printed high power and flexible FETs based on organic/ inorganic hybrid semiconductors’ **ICANN 2019**, IIT Guwahati, December 2019
14. ‘Printed electronics for mass production of functional devices and automation’ **Indo-German workshop on Recent Advances in Nanoscience and Nanotechnology**, IIT Madras, March 2019
15. ‘Solution-processed switches’ **Nanovision workshop on Printed Functional Oxides for Electronics and Energy applications**, EMPA- Swiss Federal Laboratories for Materials Science and Technology, February 2019
16. ‘Solution-processed switches’ **Karlsruhe Institute of Technology (KIT)**, February 2019
17. ‘Electrochemical control of physical properties of materials’ **NSEMD-2018, CSIR-CSMCRI**, Bhavnagar, September 2018
18. ‘Printed Oxide Electronics: Present Status and Future Prospects’ **Central University of Karnataka, Gulbarga**, February 2017
19. ‘Printed and Electrolyte-Gated Oxide Electronics’ **ICEE 2016: 3rd IEEE conference on Emerging electronics**, IIT Bombay, Mumbai, India, December 2016
20. ‘Printed and Electrolyte-Gated Oxide Electronics’ **IMID 2016: 16th International meeting on Information Display**, Jeju, Korea, August 2016

21. ‘Tunable electronic transport in nanoporous carbon: a step towards *bulk* field effect devices’ **IMRC: XXIV International Materials Research Congress**, Cancun, Mexico, August 2015
22. ‘Printed Inorganic Electronics’ Invited Tutorial, **Cusanuswerk: Symposium on Modern Printing**, Burg Wildenstein, Germany, May, 2015
23. ‘Printed and low-temperature processed oxide electronics’ **ICEE: an IEEE conference**, Bengaluru, India December 2014
24. ‘Printed electronics from inorganic oxide nanomaterials’ **BASF, Germany**, June 2014
25. ‘Printed and low-temperature processed oxide field-effect transistors’ **EMRS spring meeting**, Lille, France, May 2014
26. ‘Electrochemical field-effect & ion-exchange: Unconventional approach to tune functional properties of nanomaterials’ Physical & Life Science Directorate, **Lawrence Livermore National Laboratory, Livermore, CA, USA**, February, 2014
27. ‘Intercalation-driven control of magnetism in bulk ferromagnets’ **Department of Physics, University of Duisburg-Essen, Germany**, October, 2013
28. ‘Low temperature processing of printed field effect transistors based on inorganic nanostructures’ **AMPC 2013**, Chennai, India, February, 2013
29. ‘Revisit to electrochemical gating: Fast enough for printed electronics?’ **ICCAD, 2012**, Embedded Tutorial: Printable Electronics, San Jose, California, USA, November 2012
30. ‘Revisit to electrochemical gating: Fast enough for printed electronics?’ **IISER, Kolkata, India**, October, 2012
31. ‘Printed Electronics at Karlsruhe Institute of Technology: Electrochemical gating and oxide electronics’, **Schwabinger Druck & Repro, Germany**, June, 2012
32. ‘Electronically Tunable Nanostructures’, School of Material Science and Engineering, **Nanyang Technological University (NTU)**, Singapore, February, 2012
33. ‘Electrochemically tunable transport in metals and metal-like oxides’, **Evonik GmbH, Marl, Germany**, January, 2008

CONTRIBUTED LECTURES

1. T. T. Baby, S. K. Garlapati, F. vonSeggern, G. Stöber, R. Kruk, H. Hahn, **S. Dasgupta**, Electrolyte-gated printed oxide electronics, **LOPE-C**, München, Germany, 4-7 April, 2016
2. **S. Dasgupta**, S. K. Garlapati, B. Nasr, G. Stoesser, R. Kruk, H. Hahn, Low temperature processing of printed oxide field effect transistors, **MRS spring meeting**, San Francisco, USA, 21-25 April, 2014
3. **S. Dasgupta**, B. Nasr, G. Stoesser, R. Kruk, H. Hahn, “Low-temperature processing of field-effect transistors and circuits based on inorganic nanostructures” **Erlangen symposium on flexible electronics**, Erlangen, Germany, 19-21 June, 2013
4. **S. Dasgupta**, R. Kruk, H. Hahn, “Printed and electrochemically-gated, high-mobility, inorganic oxide nanoparticle FETs and their suitability in high-frequency applications”, **LOPE-C**, München, Germany, 19-21 June, 2012
5. **S. Dasgupta**, G. Stösser, N. Schweikert, S. Dehm, R. Kruk, and H. Hahn, “Printed, high-mobility, inorganic-oxide nanoparticle-based FET with extremely large channel roughness”, **E-MRS**, Strasbourg, France, 14-18 May, 2012
6. **S. Dasgupta**, N. Mechau, R. Kruk, H. Hahn, “Ink-jet printed nanoparticle-channel transistor processed at room temperature” **MRS Spring Meeting**, San Francisco, USA, 25-29 April, 2011

7. **S. Dasgupta**, N. Mechau, J. Lee, R. Kruk, H. Hahn, “Inkjet printed, electrochemically-gated field effect transistors with ITO nanoparticles as active layer” *MRS Spring Meeting*, San Francisco, USA, 4-8 April, 2010
8. **S. Dasgupta**, J. Eckert, I. Manna, “Superparamagnetic behavior of $Mn_{1-x}Zn_xFe_2O_4$ processed by ball milling” *4th Seeheim Conference on Magnetism*, Frankfurt, Germany, 28 March- 01 April, 2010
9. **S. Dasgupta**, M. Lukas, R. Kruk, H. Hahn, “Tuneable electron mobility in charged indium tin oxide thin films” *E-MRS*, Strasbourg, France, 8-12 June, 2009
10. **S. Dasgupta**, R. Kruk, H. Hahn, “Electrochemically-gated field-effect transistor with indium tin oxide nanoparticles as active layer”, *DPG*, Dresden, Germany, 22-27 March 2009
11. **S. Dasgupta**, M. Lukas, R. Kruk, H. Hahn, “The tuneable electron mobility in charged indium tin oxide thin films” *DPG*, Dresden, Germany 22-27 March, 2009
12. **S. Dasgupta**, S. Gottschalk, R. Kruk, H. Hahn, “Electrochemically-gated field-effect transistor with indium tin oxide nanoparticles as active layer” *NANO 2008*, Rio de Janeiro, Brazil, 1-6 June, 2008
13. **S. Dasgupta**, S. Gottschalk, R. Kruk, H. Hahn, “Surface charge induced ITO transistor for printable electronics” *DPG*, Berlin, Germany 25-29 February, 2008
14. **S. Dasgupta**, R. Kruk, N. Mechau, H. Hahn, “Electrochemically-gated field-effect transistor with indium tin oxide nanoparticles as active layer”, *Nanotronics: Science-to-Business Summer School*, Marl, Germany, 1-3 September, 2008
15. **S. Dasgupta**, J. Eckert, I. Manna “Mechano-chemical synthesis and characterization of microstructure and magnetic properties of nanocrystalline $Mn_{1-x}Zn_xFe_2O_4$ ”, *3rd Seeheim Conference on Magnetism*, Frankfurt, Germany, 26-30 August 2007

SERVICES

- Participated as a resource person and delivered ‘faculty development program’ lecture organized by **AICTE training and learning academy (ATAL)** in July 2021
- Participated in Vaibhav Summit as a panellist for the session “**Flexible, printable, wearable electronics, and additive manufacturing**” during October 2020
- Symposium Organizer, ICEE 2020, IIT Delhi, India
- Symposium Organizer, ICEE 2018, IISc Bangalore, India
- Symposium Organizer, EUROMAT 2015, Warsaw, Poland
- Session chair, EMRS Spring meeting, Lille, France, May 2014
- Session Chair, AMPC 2013, Chennai, India, February 2013

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