Facilitation Centre for Industrial Plasma Technologies
Institute for Plasma Research
Gandhinagar

Photo

Name : Dr. –Ing. Suryakant B. Gupta

Qualification :

1. PhD (Electrical Engineering from KIT Germany) and
2. MBA Systems

Designation :

1. Head - Strategic and Surface Modification Application Section (SSMAS) and
2. Nodal Officer - HBNI

Contact

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Area of Expertise

1. ESD test and validation on Satellite Solar Panels
2. Pulsed Power applications for Surface Modifications
3. Instrumentation & Control Engineering
4. Pulsed Underwater Corona Discharges for water treatment applications

Projects and Technologies

- **Project Manager:** ISO – based ESD test facility of Space Plasma Interaction eXperiment for LEO and GEO like space conditions.
- **Project Manager:** Plasma Sterilizer, sponsored by Gujarat Council of Science and technology, Gujarat, India.
- **Project Manager:** Development of an eco-friendly technology for the surface modification of carbon granule – by using dielectric barrier discharge process.
- **Project Manager:** 125 KW Solid State Pulsed Power Source for Plasma Nitriding reactor.
- **Project Manager:** Plasma Source Ion Implantation Facility for IIT Kharagpur.
- **Project Manager:** Plasma Nitriding system for Delhi University, and MG Science University Kottayam Kerala.

	• **Project Coordinator:** 100KV/25 a regulated high voltage power supply for BARC. • **Project Manager**: Development of 30 KHz, 35 KW IGBT based Pulse Power Supply • **Project Manager**: Mid Frequency (1 KHz - 500 KHz,) 3 kW tuneable HV pulsed power supply • **Project Manager:** 1 KW RF Amplifier for PECVD system. • **Project manager**: SCADA based automation for Plasma Nitridng of Nuclear reactor components.
Publications (IEEE format)	1. Amit Patel, **Suryakant Gupta**, N. P. Singh, and U. K. Baruah, "Controlled Rectifier for Improved Harmonic Performance of a Pulse Step Modulated High Voltage Power Supply", IEEE Transactions On Plasma Science, Vol. 48, NO. 12, p.p. 4374 – 4380, December 2020. 2. Ashish B. Pandya , Nikhil Kothari , Rizwan H. Alad , Rashmi S. Joshi , **Suryakant B. Gupta**, and Prarthan D. Mehta, " Secondary and Backscattered Electron Current Induced Differential Charging on a Triple Junction of Spacecraft" IEEE Transactions On Plasma Science, Vol. 48, NO. 4, p.p. 1162-1172 April 2020. 3. Bora, Biswajit; Aguilerac., Alejandro; Jain, Jalaj; Avaria, Gonzalo; Moreno, Jose; **Gupta, Suryakant**; Soto, Leopoldo, "Development, Characterizations and Applications of a Hand Touchable DC Plasma Needle for Bio-Medical Investigation" IEEE Transactions on Plasma Science, Volume: 46, Issue: 5, May [2018]. 4. Rashmi S. Joshi and **Suryakant B. Gupta**, "Arc current waveform predictor on a 2D composite surface in vacuum" IEEE Transactions on Dielectrics and Electrical Insulation (TDEI) - A special issue on Vacuum Insulation, Fundamentals and Applications, Volume: 23, Issue: 1, pp 8-13, February [2016]. 5. Amisha J. Shah, **Suryakant B. Gupta**, "Adaptive directional decomposition in non sub sample contourlet transform domain for single image super resolution", Multimedia Tools and Applications, Volume 75, Issue 14, pp 8443–8467 July [2016]. 6. Amisha Shah, **Suryakant B. Gupta**, "Optimum Multiscale Decomposition in NSCT based Single Image Super Resolution_, The Imaging Science Journal, Taylor and Francis Publication, Vol.64, No.3, pp 140-151, April [2016]. 7. **Suryakant B. Gupta**, S. Mukherjee, Keena R. Kalaria, Naresh P. Vaghela, Rashmi S. Joshi, Suresh E. Puthanveettil, M. Sankaran and

	Ranganath S. Ekkundi; "An update of spacecraft charging research in India: Spacecraft Plasma Interaction eXperiments SPIX -II; IEEE Transactions on Plasma Science, 3041 - 3046 Volume: 43, Issue: 9, Sept. [2015]. 8. Rashmi S. Joshi and **Suryakant B. Gupta,** "Diagnostic of neutralization current for arcs on satellite solar panel coupons" in IEEE Transactions on Plasma Science vol.43, no.9, pp.3000-3005, [2015] 9. **Suryakant B. Gupta**, S. Muherjee, Keena R. Kalaria, Naresh P. Vaghela, Rashmi S. Joshi, Suresh E. Puthanveettil, M. Sankaran and Ranganath S. Ekkundi; "An overview of spacecraft charging research in India: Spacecraft Plasma Interaction eXperiments SPIX -II", IEEE Transactions on Plasma Science, Vol. 42, No 4, pp. 1072 -1077 April [2014]. 10. **S. B. Gupta**, H. Bluhm, "The Potential of Pulsed Underwater Streamer Discharges as a Disinfection Technique" IEEE transactions on plasma science 2008, vol. 36 (3), pp. 1621-1632 [2008]. 11. **S. B. Gupta,** H. Bluhm, "Pulsed underwater corona discharges as a source of strong oxidants: $^{\bullet}OH$ and H_2O_2" Water Science & Technology Vol. 55 No.-12, p.p. 7-12 [2007].
Patents	• Nirav I. Jamnapara, **Suryakant B. Gupta,** Subroto Mukherjee; Indian Patent on "A process for plasma oxidation of a substrate and an apparatus therefor", application # 3431/MUM/2011 [submitted to Indian patent office]
Fellowship and Awards	• **Fellow-** "The Institution of Electronics and Telecommunication Engineers". • **Fellow** – "South Asia Institute of Science and Engineering". • Education Excellence Award 2016 for Best Engineering Contribution in Research and Development in Plasma Technology. • Hindisevi Award 2015, by Department of Atomic Energy, Government of India • Best paper presenter award "Development of Image Processing Based Arc Location identifier" International Conference on Electromagnetic Interference & Compatibility [2012].