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Facilitation Centre for Industrial Plasma Technologies

Institute for Plasma Research

Gandhinagar



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Qualification : PhD (Power Electronics), BE (Electrical Engineering)

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Field of Work

Design and development of thermal and non-thermal plasma systems including power supply architectures, controls & automations for various technological development.

Projects and Technologies

- High Power Plasma Arc Technology
- Plasma Pyrolysis/Gasification Technology
- Nonthermal DBD Plasma Technology for Textile Treatment
- Plasma Activated Water Technology
- Wire Explosion Technology for Shock Wave Generation

Publications (IEEE format)

- **V. Jain**, D. Sharma, A. Varadhrajulu, C. Gupta, R. Srinivasan and R. Denial, “ Simulation Study of Induced EMFs and the Suppression during SST-1 Start up”, vol. 100, no. 1, pp. 287-292, Nov 2015.
- **V.Jain**, A. Visani, R. Srinivasan, V. Agarwal,” Design and development of a low cost, high current density power supply for streamer free atmospheric pressure DBD plasma generation in air”, Review of Scientific Instruments, vol. 89, no.3, p. 033502, Mar 2018.
- **V. Jain**, R. Srinivasan, V. Agarwal, “An accurate electrical model for atmospheric pressure DBD plasma in air with experimental validation”, IICPE, IEEE conference, 2017.

	<ul style="list-style-type: none"> • V. Jain, S. K. Nema, V. Agarwal, “Design and simulation of feedback system to generate plasma arc in current source mode”, PIICON, IEEE conference, 2017. • N. Chandawani, P. Dave, V. Jain, S. K. Nema and S. Mukherjee, “Improving anti-felting characteristics of Merino wool fiber by 2.5 MHz atmosphere pressure air plasma”, Journal of Physics: IOP conf. series 823, p. 012010, 2017. • V. Jain, K. Nigam, N. Tanwani, S. Adam, S. Nimish, S. K. Nema, “Novel high voltage pulsing to generate uniform glow discharge air plasma for environment friendly inline treatment of textile”, PPPS, IEEE conference, 2019. • D. Sharma, A. Mistri, H. Mistri, P. Chaudhari, P. Murugan, S. Patnaik, A. Sanghariyat, V. Jain, S. Chaturvedi and S. K. Nema, “Thermal performance analysis and experimental validation of primary chamber of plasma pyrolysis system during pre-heating stage using CFD analysis in ANSYS CFX”, vol. 18, no. 1, p. 100525, Mar 2020. <p>N. Chandwani, V. Jain, P. Dave, H. Dave, P. B. Jhala and S. K. Nema, “Experimental studies on applications of atmospheric pressure air plasma for ecofriendly processing of textiles and allied material”, Accepted for publication in Journal of the Institutions of Engineers (India) : Series E, May 2021.</p>
<p>Patents (IPR)</p>	<ul style="list-style-type: none"> • Plasma pyrolysis system and process for the disposal of waste using graphite plasma torch (Patent Number 272122). • Plasma pyrolysis system for safe disposal of organic waste using plasma torch with a novel endogenous gas source (Patent Number 281257). • Apparatus for production of microwave plasma (Patent Number 375337). • Apparatus for treating matter using Inductively Coupled plasma at atmospheric pressure (Application number 269/MUM/2013) • A system to generate high power density dielectric barrier discharge plasma in ambient air medium (Application number 1704/MUM/2014). • Apparatus for generating plasma activated water (Application number 201621043562) • An apparatus to generate large plasma arc plume for waste disposal and thermal processing applications (Application number 202121039223)