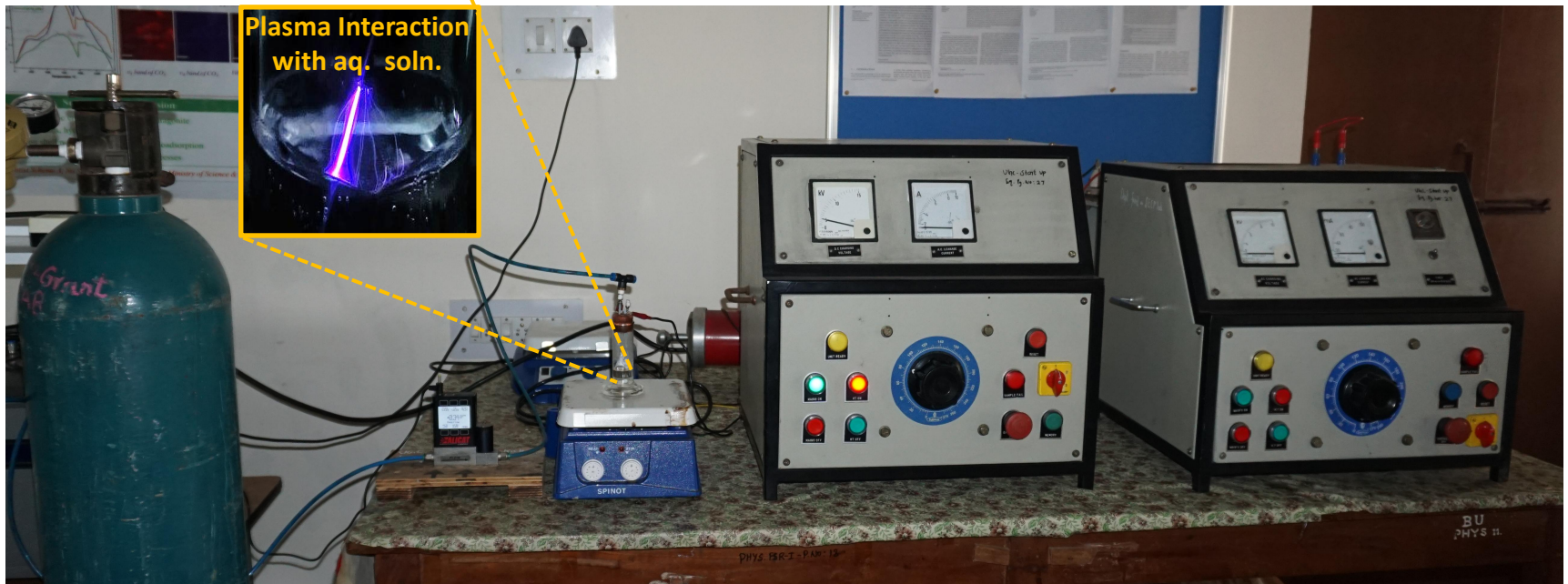


# Surface & Environmental Control Plasma Laboratory Bharathiar University, Coimbatore



## Experimental Setup of Micro Discharge Plasma (MDP) : AC & DC Power Sources

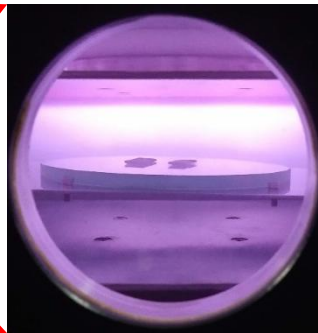
### Micro Discharge Plasma (MDP):

- low temperature plasma discharges in micrometer dimensions can be generated in atmospheric pressure
- able to interact with liquids, tissues, plastics, seeds, and other surfaces
- applications include purifying water & industrial effluents, plasma activated water (PAW) for irrigation, Nano/Quantum dot synthesis, sterilizing surfaces and treating open wounds etc..



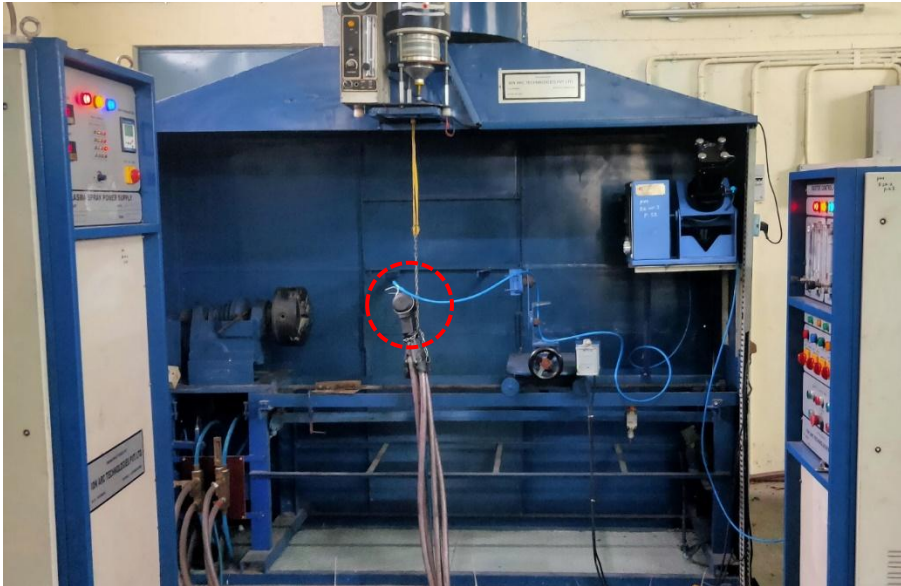
## Dielectric Barrier Discharge

- **Surface modification**  
Textile fabrics & Polymer films for drug delivery
- **DBD torch**  
Dye degradation and waste water treatment
- **OES analysis**  
Analysis of plasma species etc.,



## DC Glow Discharge Plasma

- **Plasma Diagnostics**  
Plasma parameters measurement
- **Surface Modification**  
Cotton fabric, PET fabric, PVC, PS, PMMA films and TiN nanoparticles
- **Food Processing**  
Plasma treatment of soya chunks to extend the shelf-life

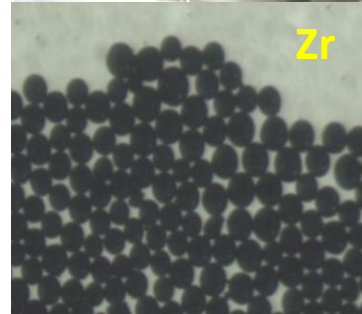


## 40kW Atmospheric Plasma Spray

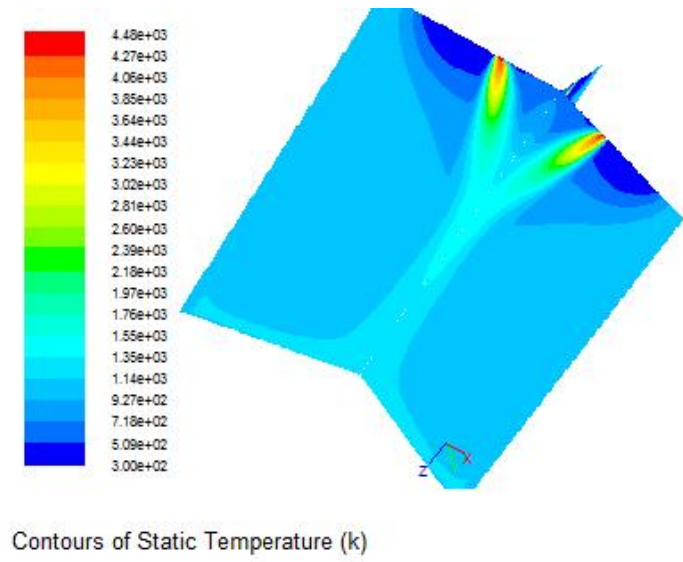
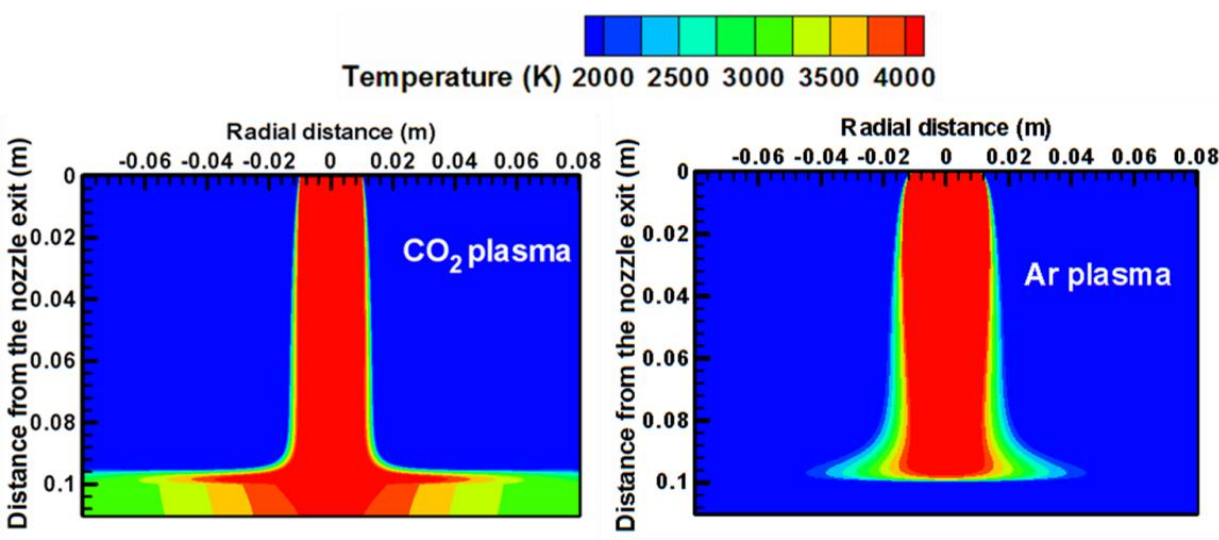
- Plasma spraying
  - Alumina & Zirconia , Wear Resistant Coatings
- Thermal Barrier Coatings
  - YSZ coatings, Lanthanum zirconate
- Electrode material fabrication
  - FeNi based electrode material for water splitting



# Bharathiar University

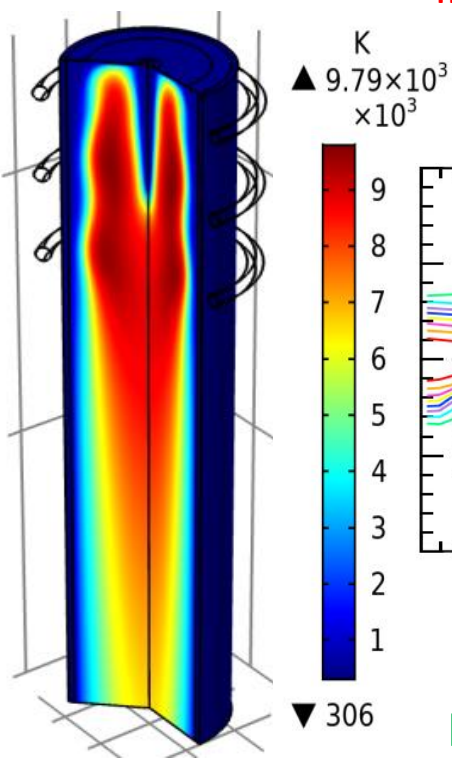


**Thermal plasma material processing laboratory**

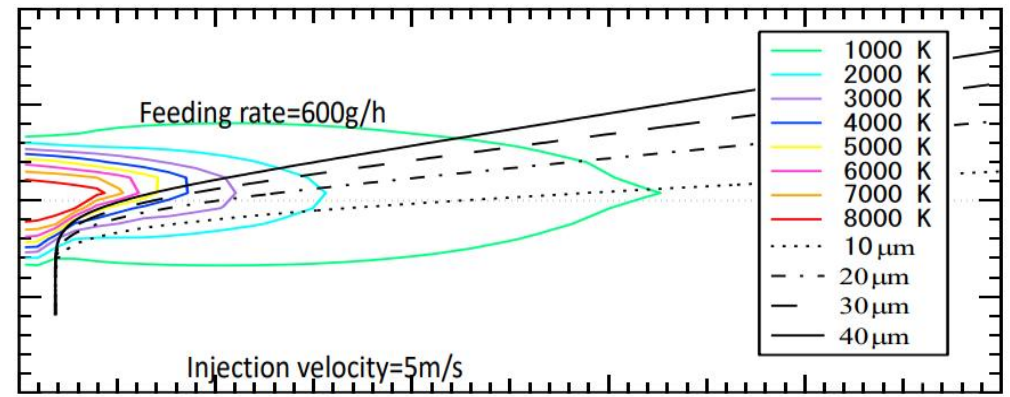


Impinging plasma jets

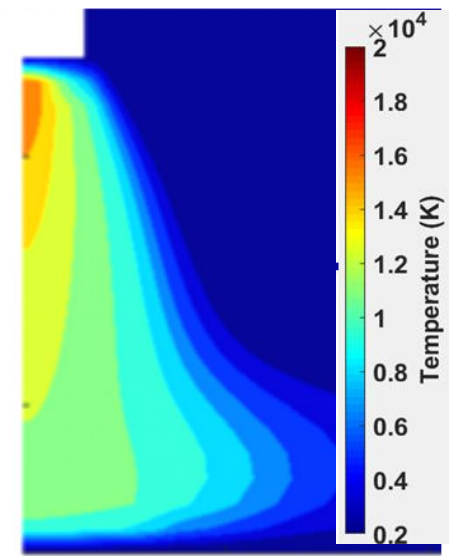
Converging plasma jets



RF plasma



Plasma-particle interaction



Plasma arc



## LIST OF PLASMA RESEARCH INSTITUTIONS IN SOUTH INDIA

STATE	S.NO	NAME OF THE INSTITUTION	WEBSITE
Tamil Nadu	01	Bharathiar University	<a href="https://b-u.ac.in/15/department-physics">https://b-u.ac.in/15/department-physics</a>
	02	VIT	<a href="https://chennai.vit.ac.in/research/academic/">https://chennai.vit.ac.in/research/academic/</a>
	03	Sri Shakthi IET	<a href="https://www.siet.ac.in/physics-department#">https://www.siet.ac.in/physics-department#</a>
	04	CIT	<a href="https://cit.irins.org/profile/235880">https://cit.irins.org/profile/235880</a>
Pondicherry	05	Pondicherry University	<a href="https://www.pondiuni.edu.in/department/department-of-physics/">https://www.pondiuni.edu.in/department/department-of-physics/</a>
Kerala	06	University of Calicut	<a href="https://physics.uoc.ac.in/">https://physics.uoc.ac.in/</a>
	07	CSIR-NIIST	<a href="https://www.niist.res.in/">https://www.niist.res.in/</a>
	08	Mahatma Gandhi University	<a href="https://spap.mgu.ac.in/areas-of-research-solar-physics/">https://spap.mgu.ac.in/areas-of-research-solar-physics/</a>
Karnataka	09	IISC Bangalore	<a href="http://www.physics.iisc.ac.in/people-faculty.php">http://www.physics.iisc.ac.in/people-faculty.php</a>
Andhra Pradesh	10	IIT Tirupati	<a href="https://www.iittp.ac.in/people/faculty/physics-department">https://www.iittp.ac.in/people/faculty/physics-department</a>
Telangana	11	IIT Hyderabad	<a href="https://physics.iith.ac.in/research-areas/optics.html">https://physics.iith.ac.in/research-areas/optics.html</a>
	12	ARCI Hyderabad	<a href="https://www.arci.res.in/research-areas">https://www.arci.res.in/research-areas</a>