

Value-Added Course on

Department of Power Engineering, Jadavpur University

Date: 08/12/2022, Time: 11:45 A.M.– 1:00 P.M.

Model Classroom (5th Floor)

Title of the Course: Dew condensation and harvesting: potential source of drinking water. New challenge for some arid countries

Abstract:

Water condensation from humid air is an important process encountered in many areas of science and technology. It is also a mean to obtain fresh water from air to help facing water shortage that occurs in many areas of the world. The process, however, is bound by the fundamental constraint of the nature of the fluid-surface interactions and reveals large inefficiencies at the fluid-substrate interfaces.

First of all I will give you some data about water scarcity and fresh water resource around the world.

Then I'll introduce condensation phenomena, formation and harvesting of dew.

In the aim to perform dew formation and harvesting, I will show you experimental result on the edge effect during droplet condensation and on the influence of substrate roughness on the amount of water that can be harvested by flowing from condensation on a cooled vertical plane.

Bio- Sketch:

Dr. Marie-Gabrielle Medici completed her PhD at the C.S.N.S.M. from Paris-Saclay Univeristy. The topic was *the study of ion beam mixing of bi-layers and multilayers*.

She joined Nice University in 1992 as Assistant Professor. At INPHYNI (Nice) laboratory, she started her research on *high critical temperatures superconductors*, and was particularly focused in *the role of illumination on Bi-crystal Grain boundary Josephson Junction*. Between 1997 and 1999 Dr. Medici joined the "Texas Center for Superconductivity", directed by P. Chu. at UH (University of Houston, Texas).

Following the institute INPHYNI re-organization in 2010, she invested in a new area of research: condensation. During the years 2011-2013, Dr. Medici integrated the team of Daniel Beysens of PMMH/ESPCI (Paris), acknowledged for his work on dew.



In order to improve the rate of condensed water and water streaming on inclined substrate, she has undertaken several studies, such as the *edge effect on condensation* and *the influence of roughness on the flow of condensed water on vertical substrate*.

In parallel, Dr. Medici is involved in various projects

- Weather data collection and correlation with the amount of dew harvested
- Condensation on 3D-printing and post-functionalization surfaces, mimicking plants leaves structures.
- Particle collection by an electrostatic filter.

Eligibility: Final year Undergraduate students, Postgraduate Students, Research Scholars and Faculty Members

For registration, please contact the undersigned by **7/12/2022**:

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