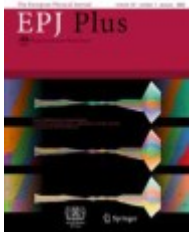


ME faculty's research paper published in European Physical Journal Plus



MR. VIBIN ANTONY P



A piece of research work of Mr Vibin Antony P (AP, ME Dept) has been recognized by the research community. A paper titled "Heat transfer enhancement using CNT coated needle electrodes in corona wind discharge system" authored by him (jointly with Mathew Joseph, Sehmus Ozden, Chandra Sekhar Tiwary and V Sajith) has been published online in the European Physical Journal Plus (Springer, SCI, with an impact factor of 3.911) on 30 April 2022.

Abstract of the paper

Miniaturization and high integration of electronic devices demand effective removal of heat flux, which requires an efficient cooling system. Corona wind discharge system (CWDS) with CNT-coated electrode is an attractive option for efficient cooling with low power consumption. The flow and heat transfer characteristics of the CWDS with CNT-coated electrode were experimentally investigated in the present work. Water-assisted CVD apparatus was used for the coating of CNT on needles, with Iron as catalyst. The interaction between the electrodes was experimentally studied by flow visualization method. The heat transfer characteristics of the CWDS were estimated using Mach–Zehnder interferometry, which is a powerful nonintrusive method for the measurement of heat transfer. The effect of number of electrodes, input power and the distance between the electrodes were studied experimentally and the results were compared. CWDS with CNT-coated electrode decreases the initiation voltage while increasing the velocity by 140%. The power consumption was decreased by 60% and heat transfer coefficient was found to be enhanced by 12% for CNT-coated electrode, as compared to uncoated electrodes.

For more info on the paper, click the link:
<https://doi.org/10.1140/epjp/s13360-022-02723-6>
