Contribution ID: **650** Type: **Oral**

Heat Transfer of a Heat Pipe on fins using Silver nanofluid

Tuesday 22 May 2018 09:15 (15 minutes)

Heat Transfer of a Heat Pipe on fins using Silver nanofluid

P. Meena1*, A.Seangmart1
1 Energy Innovation and heat pipe technology Research Unit (EIHTR), Department of physics, Faculty of science, Mahasarakham University, Thailand 44150Department of Physics, Faculty of Science, Mahasarakham University, Mahasarakhum, 44150 Thailand

*E-mail: pattanapol.m@hotmail.com

Abstract
This research aimed to determine the heat transfer rate of the heat pipe using Silver as a working fluid. The CLOHP/cv in this study was made of copper. The copper tubes and fins have an outside diameter of 5.16 mm. The lengths of the evaporator, adiabatic and condenser sections are 200, 100 and 200 mm, respectively. The radians of fins is 0.5 cm. The CLOHP/cv had 24 tubes with Silver-nanofluid as the working fluid, and a filling ratio 50% of total volume. The evaporator section was heated by a heater, while the condenser section was cooled by fresh air. The hot air was controlled to 60 70 and 80 degrees Celsius, and the fresh air velocities were adjustable to three levels: 0.5, 1.0 and 1.5 m/s. The test operation was focused on the heat transfer rate and thermal effectiveness of the CLOHP/cv. It was found that the maximum value of the heat transfer rate and thermal effectiveness occurred when the air velocity and hot air temperature were 0.5 m/s and 80 degrees Celsius, respectively.

Keyword: Silver nanofluid; Fins; Working fluid; Heat transfer; Thermal Effectiveness

Primary author: Dr MEENA, Pattanapol (Department of physics, Faculty of science, Mahasarakham University)

Presenter: Dr MEENA, Pattanapol (Department of physics, Faculty of science, Mahasarakham University)

Session Classification: A14: Environment

Track Classification: Environmental Physics, Atmospheric Physics, Geophysics and Renewable Energy