2016 SATU Joint Research Scheme Program
Host Application Form

Date: 2016 / 04 / 25 (year / month / day)

1. Host University
   University of Malaya

2. Host Unit
   Department of Mechanical Engineering

3. Joint Research Project Title
   Thermal Characteristic and Entropy Efficiency of Nanofluids In Solar Collector System

4. Principal Investigator
   Passport Name: Dr. Ong Hwai Chyuan
   Nationality: Malaysian
   Gender: M
   Address: Department of Mechanical Engineering, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur, Malaysia
   Telephone: (Office) +603-7967 5247 (Home / Mobile) 016-5903110
   Fax Number: +603-7967 5317
   E-mail: onghc@um.edu.my

5. Co-PI from the same unit – If any
   Passport Name
   Nationality
   Gender: M
   Address
   Telephone: (Office) (Home / Mobile)
   Fax Number
   E-mail

6. Project Details
   Project Description: Nanofluids are new innovative fluids that can be used as carries fluids. Nanofluids exhibits enhanced or modified thermos-physical properties such as thermal conductivity, convective heat transfer coefficient, viscosity and thermal diffusivity compared to base fluids. By adding the
nanoparticle into base fluid can significantly enhance thermo-physical mass diffusivity and radioactive heat transfer properties of fluid. A small amount of nanoparticles in base fluid can significantly improve the thermal efficiency. Due to these inherent characteristics, nanofluids are getting increasing attention among scientists, researchers and engineers to develop and improve the systems based on nanofluids as a heat transporting and absorbing medium. This research is to improve and enhance the efficiency in solar collector application using GNP and GO nanofluids. Synthesis of water based GNP and GO nanofluids have been investigated and characterized. Dispersion quality of nanofluids is assured by additional synthesis process like acids treatment. Sedimentation effect of nanofluids with time length has been studied by sample visualization and TEM micrographs. The augmentative absorbance and thermal conductivity of nanofluids have been compared with pure water. Entropy generation analysis will be implemented for measuring the effectiveness of the flow passage design. Finally, application of nanofluids in solar thermal system will be investigated and studies.

7. Acknowledgement (Signed by the President or SATU representative to show recognition)

Please email satu@email.ncku.edu.tw before 2016.4.29 (Fri.) for application with the subject line: <2016 SATU JRS host application –School Name>. Thank you.