



KEYNOTE SPEAKERS




Prof. Bekir Yilbas

Distinguished Professor at KFUPM, Saudi Arabia

Keynote Presentation Title

“Self-Cleaning of Surfaces for Energy Harvesting Applications”

 **15 March 2022**

 **10:00 - 10:45**
(GMT+3)

Abstract

One of the environmental impacts of climate change is to increase the rate of regional dust mitigation around the Globe. Increased regularity of dust storms significantly contributes to dust mitigation and dust settlement over surfaces. Environmental dust composes of multi-compounds such as silica, calcite, iron sulfate, sodium, and potassium chlorides, etc. Some of these compounds can dissolve in water on rainy or humid days and the resulting liquid solution while enhancing the dust particles' adhesion upon drying. On the other hand, one of the major concerns of the dust settlement on surfaces is influencing the performance of solar energy harvesting devices, such as PV panels and troughs. Although several methods have been purposed for dust mitigation from surfaces such as air jet blowing, water jet splashing, mechanical brushing, and similar, further studies are needed to develop efficient, self-sustained, and cost-effective dust mitigation methods. In the present talk, environmental dust characteristics including size distribution, shapes, and elemental composition are presented. In addition, the effective ways of dust mitigation from optically transmitting surfaces, such as PV panel surfaces, are presented. The role of surface hydrophobicity on environmental dust mitigation will be discussed.

Prof. Bekir Yilbas

Distinguished Professor at KFUPM, Saudi Arabia

Biography

Prof. Bekir Sami Yilbas is a Distinguished University Professor working at the Mechanical Engineering Department of King Fahd University of Petroleum and Minerals. He completed his degree studies B.Sc (1976), MSc (1978), and Ph.D. (1982) from Birmingham University, UK. He received a Doctor of Engineering degree (DEng, 2005) from Birmingham University (UK), which is considered as the highest doctorate being awarded after a Ph.D. degree in Engineering. His research covers renewable energy, heat transfer, thermodynamics, fluid mechanics, and particularly laser applications in material processing and manufacturing. He had several administrative positions and he is currently serving as the editor and editorial board member of several international journals. Prof. Yilbas received several international awards for his scientific contributions. He published over 500 papers in reputable International Journals and 12 research books. His h-index is 55 and his work received over 16000 citations over the years.

