



**DISTRIBUTED SOLAR NETWORK FOR AIR VENTILATION IN THE HYBRID VEHICLES**

Dr. Aly Aboulnaga

King Faisal University, Alhsaa 31982, KSA

It is very important to manage the power generation in the hybrid vehicles to maintain the highest possible efficiency. One of the most effective methods to increase the efficiency of the hybrid vehicle is use auxiliary power sources for temporary loads inside and outside the vehicles. This allow the main energy source(s) to be used only to drive the vehicle and therefore increase the driven mileage. This paper presents a distributed solar network on the external body of the vehicles. The output of this solar network is connected to a buck-boost power DC-DC converter. This scheme is used to drive a ventilation system mainly to avoid temperature rise inside the vehicle especially in summer or when parked in sunny climate. This will reduce the degradation of the interior of the vehicle and help the air-conditioning to run effectively. The excess energy produced by this scheme is used to charge the main battery bank of the hybrid vehicle. A quantitative study of this distributed solar network will be presented to show the improvement in the overall efficiency and the lifetime of the vehicle.

**Biography**

Dr. Aboulnaga received his B.Sc. in 1997 and M.Sc. in 2000 in Electrical Engineering from Mansoura University, Egypt. He received his Ph.D. in Electrical and Computer Engineering from the Illinois Institute of Technology (IIT), Chicago, USA in 2004. He has nine years of industrial experience at Philips Electronics North America, where he focused on research and design of Solid State Lighting Systems for automotive, indoor, and outdoor lighting applications. He is the author/coauthor of numerous publications, granted/pending patents, book chapters, technical papers, and industrial reports. Dr. Aboulnaga has recently joined the College of Engineering at King Faisal University, KSA, as an Electrical Engineering assistant professor.