

JULY 2015: “ELECTRICAL INSULATION FUNDAMENTALS – PULSED POWER AND HIGH FREQUENCY BREAKDOWN”

22 July 2015 –About 25 members and guests of Dayton IEEE/PEAL Chapter came to the University of Dayton Research Institute’s River Campus to attend a lecture given by Dr. Hulya Kirkici, a Professor of Electrical and Computer Engineering at Auburn University, and Past-President of the IEEE Dielectrics and Electrical Insulation Society. Dr. Kirkici presented an encompassing overview of dielectric material fundamentals and failure mechanisms, as they relate to advanced electrical power systems. Particular emphasis was placed on aerospace systems and electronic pulsed power applications.

It became apparent that many components in power systems must be electrically insulated for proper functionality, as systems become more complex with specific size and weight limits that impose higher electrical stresses onto dielectrics and insulation materials. In a space/aerospace context, the influence of factors such as reduced ambient pressures, outgassing, existence of ionosphere and space plasma must also be considered, along with high frequency and localized high field stresses on insulation.

In addition to the technical lecture, Dr. Kirkici took some time to review the IEEE Technical Activities Board, which is responsible for directing the advancement of the theory and practice, of electrical, electronics, communications and [computer engineering](#). She pointed out that the membership of IEEE technical societies are represented by grouping the societies with similar interests into Divisions, which are represented by elected Director/Delegates. Two-thirds of the PEAL societies (IAS and PELS) are in Division II, for which Dr. Kirkici is currently running for the position of Director/Delegate.

