Keynote Talk: The Role of Multiphysics Modeling in Lightning Protection Design and Certification

Abstract

In the aerospace and wind turbine fields, implementing a suitable lightning protection design is paramount. Lightning, and other electromagnetic effects (precipitation static, radiated fields, etc.), can seriously degrade performance, damage, or even destroy objects without an acceptable protection design. In the past, to determine the threat that lightning poses, several iterations of engineering testing were required to obtain data, which drives the protection features an object must have to survive. This is a high-risk path and can result in tremendous program costs and setbacks. Multiphysics modeling allows for the effects of lightning to be understood without having to perform dozens of test iterations and frequently results in large time and cost savings for programs that use it. In this talk, the role of multiphysics in the development of lightning protection designs and the certification of these designs is discussed as well as the benefits of this approach.