Digital Twin of Power Systems and Power System Modeling and Simulation

Abstract-Aiming at three major problems of digital twin (DT) in electrical power systems, including vague definition, uneven project quality and unclear difference from traditional simulation, DT, together with its related basic concepts were clarified in this talk. Based on the main characteristics of DT, five performance indices for maturity evaluation of DT projects were proposed. By reviewing the history of power system simulation tools, reasons why the power system could not breed the concept of DT were discussed, and differences between DT and traditional power system simulation were concluded. On this basis, both direction and enabling fields of DT in power systems were predicted. Following this, several main construction techniques of DT were also introduced.