

//// Panel Session 02 ////

**Protection and Control Technology for Power Systems
with High Penetration of Renewables**

○ INTRODUCTION AND TOPICS ○

High penetration of renewables, high proportion of power electronic equipment and ultra-high voltage long-distance transmission have become the main features of modern power systems. However, under the nonlinear time-varying controlled characteristics and weak overload capacity of power electronic equipment, the fault process of power grids has undergone essential changes. The previous fault feature analysis method based on synchronous generators is no longer fully applicable. The accuracy, speed and reliability of traditional protection criteria that rely on power frequency characteristics are difficult to meet the requirements of grid development. Hence, the existing protection principles are facing severe challenges. In addition, there is a multi-time scale coupling effect between power electronic equipment transient control, system security control and grid protection. However, the relevant configuration are currently separated and lack effective coordination. The grid is more prone to cascading failures, aggravating system security risks. Therefore, accurately characterizing the spatiotemporal distribution characteristics of power system faults, exploring the control potential of power electronic equipment, building a new protection and control coordination mechanism, and inhibiting the occurrence and evolution of cascading failures are key directions that need to be studied urgently. This panel session aims to provide a communication and discussion platform for relevant researchers to explore protection and control technologies suitable for power systems with high proportion of renewables.

○ PANEL SESSION CHAIRS ○

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○ PAPER SUBMISSION ○

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○ ORGANIZATIONS ○

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