

Abstract: Electrical machines are a key technology in numerous market sectors which can make significant contributions to the global net-zero circular economies. In this presentation, Professor Zhu will start with an overview of the history of a new class of permanent magnet (PM) machines based on field modulation and magnetic gearing principle. Then, various innovative PM machines will be described and their inherent relationships will be revealed, including fractional slot PM machines, fault-tolerant PM machines, multi-port electrical machines, stator PM machines, and magnetically geared machines etc. Finally, he will highlight the recent developments in high torque PM machines based on field modulation and magnetically geared PM machines