Transient performance of series connected three phase slip-ring induction motors

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Abstract

The possibility of operating a three phase slip-ring induction motor as a series connected motor is explored. The merits and drawbacks of this mode of operation are discussed. For this purpose, the necessary mathematical models along with the corresponding computer simulation are developed and experimental verification of the theoretical results is also carried out. It has been found in general that operation of slip-ring induction motors as series connected motors is possible providing that the rotor winding is connected in a sequence opposite to that of the stator winding. This adds flexibility to the modes of operation of these motors. Moreover synchronous operation is also possible, providing that the series connected motor is driven initially at twice its synchronous speed and then connected to the supply