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(54) **SHAPED MAGNET STRUCTURES FOR PERMANENT MAGNET SYNCHRONOUS MACHINES AND METHOD OF MAKING**

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(57) **ABSTRACT**

A rotor core includes a magnet pocket defined by the rotor core and extending longitudinally in an axial direction of the rotor core. The rotor core also includes a magnet structure disposed within the magnet pocket and extending transversely in a radial direction and/or circumferential direction of the rotor core to define a magnet width, the magnet structure extending longitudinally in the axial direction of the rotor core, wherein the magnet structure has a varied axial length.