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Engineering design and construction of a spinning conducting shell to stabilize the RWM in a cylindrical, line-tied screw pinch ROCH KENDRICK, University of Wisconsin, Madison, CARY FOREST — The primary goal of the rotating wall machine is to demonstrate the stabilization of the resistive wall mode using rotating metal walls. This poster describes the design and construction of a spinning shell for the rotating wall machine. The plasma is a 1 meter long, 10 cm radius cylindrical plasma column that has recently shown the existence of a resistive wall mode for sufficiently large currents. The plasma is surrounded by two shells: one is a 0.5 mm thick, stationary shell at the plasma boundary (with a shell time of 7 ms); and the second is a 0.5 mm thick shell at 12 cm radius, mounted inside a carbon fiber spinning tube. The carbon fiber tube is in turn supported by foil bearings and driven by an air turbine, technologies which should easily allow the shell to spin at rotation frequencies up to 100 Hz. These frequencies should be adequate for demonstrating the stabilization of the MHD.

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