



## New Electrostatic Motor Design Simplifies Manufacturing

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing cost-saving electrostatic machines with features for smooth torque production.**

### Overview

'Electrostatic' motors and generators make torque using moving plates and electrical fields. They are lighter and cheaper than conventional electromagnetic designs that rely on iron, copper windings and rare earth materials.

Electrostatic machines work well in small-scale microelectromechanical systems (MEMS), which allow extremely small gaps between rotor and stator elements. Larger scale machines require complex vacuum components that make manufacturing more difficult.

### The Invention

UW-Madison researchers have developed a versatile design for large-scale electrostatic machines. The new design features circular rows of pegs attached to plates and immersed in dielectric fluid. The pegs come in and out of alignments as the plates rotate. The shape, length and positioning of the pegs can be varied as needed to achieve higher torque.

### Applications

- Industrial/automation machines (where servo electric motors are used)

### Key Benefits

- Works in macroscale devices
- Eliminates costly vacuum components
- Smooth, consistent torque
- Simplifies manufacturing
- Versatile design

### Stage of Development

Simulations and modeling.

### Additional Information

#### For More Information About the Inventors

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Tech Fields

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- [Engineering : Electric machines](#)

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