

**Material Science: Fabric/Textiles**

**Title:** *Method for Increasing Fiber Density in Electrostatic Flocking (UMD 06-01)*

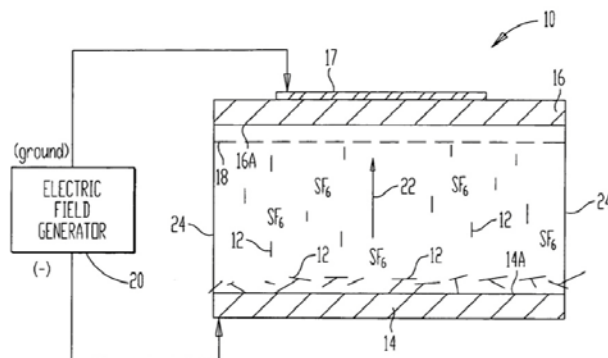
**Inventors:** *Yong Kim et al.*

**Applications:** Materials for use as a component of fuel cells in underwater applications, and for use in consumer electronic products

**Benefits:** Materials created according to this method are advantageous in enabling enhanced heat transfer.

**Technology Description:** UMass Dartmouth and the Naval Undersea Warfare Center (NUWC) are joint owners of issued U.S. Patent Number [7,354,626](#), entitled "Method for Increasing Fiber Density in Electrostatic Flocking". The patent covers improved methods of creating electrically-conductive materials by using electrostatic flocking to maximize the fiber density of the materials. In the methods of the invention, fibers such as carbon fibers are deposited directly onto a first electrically conductive surface, after which a second electrically conductive surface coated with an adhesive is placed over the first surface. A vacuum is then created in the space between the two surfaces, and the vacuum is filled with sulfur hexafluoride gas. An electric field is generated between the surfaces, causing the fibers to leave the first electrically conductive surface, accelerate through the electric field and sulfur hexafluoride, and become coupled to the adhesive on the second surface. The use of sulfur hexafluoride rather than air results in a significant increase in fiber density of the resulting fibrous structure.

**Patent Status:** [US Patent No. 7,354,626](#).



The figure shows a schematic view of the apparatus used to fabricate a fibrous structure in accordance with the invention.

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