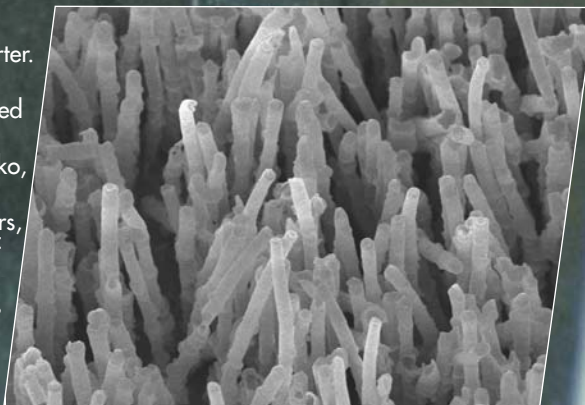




High-friction microfibers

No adhesive is holding up this quarter. Instead, it is staying on the inclined glass plate because it has been coated with a high-friction array of microfibers. Taking their lead from the gecko, which can climb walls and traverse ceilings thanks to millions of small hairs, or *setae*, on its feet, Ronald Fearing of the University of California, Berkeley, and his colleagues have created arrays of polypropylene fibers with lengths of about $20\text{ }\mu\text{m}$ and diameters between 0.6 and $5.0\text{ }\mu\text{m}$. The individual fibers can flex, which allows them to make better contact with a surface than a flat polypropylene film does. As a result, the fiber arrays, like the one in the scanning electron micrograph, have a coefficient of friction more than an order of magnitude larger than bulk polypropylene's and comparable to that of tire rubber. But unlike many other high-friction materials, the fiber arrays demonstrate no measurable adhesion on smooth surfaces. (C. Majidi et al., *Phys. Rev. Lett.* **97**, 076103, 2006; photo courtesy of the Fearing Group, UC Berkeley.)



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