BIG IDEA

CONFRONTING WATER SCARCITY DROP BY DROP

New research from Kyoo-Chul Kenneth Park, assistant professor of mechanical engineering, found that when droplets on a fiber coalesce, they self-propel and increase their speed by up to 270 percent. Park tested droplets of different sizes and viscosities on wires with varying diameters, looking for the optimal combination for speed and energy. When he identified the right ratio, the joined droplets' speed increased nearly threefold. This, he realized, could help optimize a key area of his research—fog harvesting.

As the challenge of water scarcity has grown globally, fog harvesters—hydrophilic mesh sheets stretched across vertical posts—have emerged as an inexpensive and accessible way to collect water from air. Unfortunately, today's harvesters are inefficient because water droplets often escape through the mesh if the wires are sized incorrectly.

Park's research could further the design of new, more efficient fog harvesters. His finding could also help researchers optimize other environmental processes, including mist elimination, filtration, oil/water separation, and microplastics collection.