

# Colloquium Notice

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## *Evaporation-Driven Engines and Generators*

Evaporation, which fuels rain and wind, is one of the largest energy flows on Earth. While we can now access many energy sources powered by evaporation, such as hydropower and wind power, the upstream energy of natural evaporation still remains untapped. Water-responsive materials that swell and shrink in response to changes in humidity level can convert evaporation energy into mechanical energy. Bacillus spores are one example of water-responsive materials developed by nature. Our recent study shows that the energy density of spores is significantly higher than all existing actuator materials and artificial muscles. Using spores, we developed two kinds of evaporation-driven engines that can self-start and continuously convert evaporation into mechanical motions, and subsequently into electricity, when placed at air-water interfaces. The energy harvested from evaporation is enough to power a small light source as well as a miniature car.

Monday

**April 23, 2018**

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326