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The Hopping Dynamics of a Drifting Heat Blanket in Turbulent Thermal Convection JIN-QIANG ZHONG, Dept. of Physics, NYU, JUN ZHANG, Dept. of Physics and Courant Institute, New York Univ. — We report an experimental study in turbulent thermal convection that has an open upper surface. The geometry of the convective system is annular with aspect ratio (girth/height) on the order of 10 and with periodic boundary conditions. We investigate the intriguing interaction between the convective flow and a freely moving, floating boundary that partially covers the open fluid surface. The floating boundary position and the corresponding convective pattern are simultaneously recorded and correlated to reveal the coupled dynamics. We observe robust hopping behavior of the floating boundary as it exerts a thermal blanketing effect (reducing the local heat loss from the bulk fluid), which constantly modifies the bulk convective pattern.

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