Center for Environmental & Applied Fluid Mechanics

"Urban Heat Mitigation: Bridging Thermodynamics with Aerodynamics"

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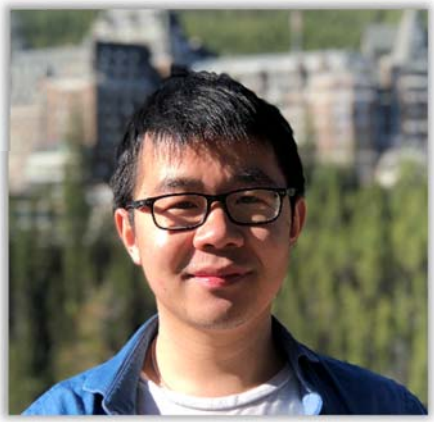

As the climate warms and as the urban population continues to increase, heat becomes one of the most pressing environmental issues in cities. Various urban heat mitigation strategies such as white and green roofs have been proposed. From the physical science perspective, key questions to address include how effective these strategies are and where/when they are mostly effective. In this talk, I will first use two examples to demonstrate that the surface energy balance provides a strong constraint on the cooling effects of urban heat mitigation strategies at long-term scales. In both examples, the convective heat transfer efficiency plays an important role in controlling the effectiveness of urban heat mitigation strategies. I will then discuss the challenges in parameterizing flow and scalar (e.g., heat) transfer over complex urban environments and conclude my talk with some discussions on the role of atmospheric feedback.

Spring 2023 CEAFM Seminar Series

February 17, 2023 ✦ 3:00 PM ✦ Gilman Hall 50

Johns Hopkins Whiting School of Engineering