

Abstract Submitted  
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**Modeling thermal transport to droplets impinging on horizontal superhydrophobic surfaces** JONATHAN BURNETT, JULIE CROCKETT, DANIEL MAYNES, Brigham Young University — An analytical model is developed to quantify the heat transfer to droplets impinging on heated superhydrophobic surfaces. Integral analysis is used to incorporate the apparent temperature jump at the superhydrophobic surface as a boundary condition. This model is combined with a fluid model which incorporates velocity slip to calculate the cooling effectiveness, a metric outlined in contemporary work. The effect of varying velocity slip and temperature jump is analyzed for different impact Weber numbers and surface temperature ranging from 60 to 100 °C. Heat transfer to the drop on superhydrophobic surfaces is decreased when compared to conventional surfaces.

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