

Spring 3-29-2012

The Effect of Acceleration on Nucleate Boiling and Bubble Departure Dynamics in Microgravity

Jenica Sparrow

Heng Ban

Utah State University

JR Dennison

Utah State University

Follow this and additional works at: http://digitalcommons.usu.edu/mp_presentations

 Part of the [Physics Commons](#)

Recommended Citation

Sparrow, Jenica; Ban, Heng; and Dennison, JR, "The Effect of Acceleration on Nucleate Boiling and Bubble Departure Dynamics in Microgravity" (2012). National Council of Undergraduate Research. *Presentations*. Paper 65.
http://digitalcommons.usu.edu/mp_presentations/65

This Presentation is brought to you for free and open access by the Materials Physics at DigitalCommons@USU. It has been accepted for inclusion in Presentations by an authorized administrator of DigitalCommons@USU. For more information, please contact dylan.burns@usu.edu.





The Effect of Acceleration on Nucleate Boiling and Bubble Departure Dynamics in Microgravity

Jenica Sparrow¹
[Mentors: Heng Ban¹ and J.R. Dennison²]

¹*Get-Away-Special Team
Mechanical & Aerospace Engineering
Utah State University*

²*Materials Physics Group
Physics Department
Utah State University*

Abstract

Microgravity is created whenever an object is in free-fall. With such minuscule amounts of gravity acting on an object, it experiences a sensation described as weightlessness. This project was designed to evaluate the significance of an environmental influence (very small background accelerations and acceleration changes) on the velocity, overall acceleration, and bubble departure rate in nucleate boiling, to better understand the process of heat transfer in microgravity. Based on the results of the FUNBOE 2.0 experiment, we concluded that small changes in gravity—such as those experienced on the NASA Weightless Wonder—are not sufficient to have any noticeable effect of buoyancy on the heat transfer rate.