

Abstract Submitted  
for the TSF16 Meeting of  
The American Physical Society

**Acoustic Study of Clarinet Voicing Stacks**<sup>1</sup> CHRIS SNELLINGS,  
MARY NELSON, JEFF O'FLYNN, BONNIE ANDERSEN, Utah Valley University  
— The clarinet functions as a stopped tube and therefore sounds the fundamental  
pitch, and overblows to the third and fifth harmonics. Learning to control these  
registers, or voicing the instrument, is an essential part of a clarinetist's education.  
By understanding how the clarinet couples to the overtones and whether the clarinet  
has an inherent “memory” for overtones, teachers can better instruct their students.  
In order to study the effects of overtones and voicing, data was collected for an  
advanced student just beginning to learn voicing. The duration she could maintain  
the sound coupled to the third partial without the benefit of the register key at  
the top of the tube to stabilize the sound was measured. By measuring duration  
and sound levels, the airflow affecting the coupling could be observed. As expected,  
the longer the fundamental wavelength was, the more energy it took to maintain  
coupling the third partial. An artificially blowing mechanism was then coupled to  
the clarinet to measure how a steady, unchanging stream of air affects coupling.

<sup>1</sup>Western Alliance to Expand Student Opportunities, the Presidential Fellowship of  
Utah Valley University, and Scholarly Activities Committee of the UVU College of  
Science and Health

Bonnie Andersen  
Utah Valley University

Date submitted: 23 Sep 2016

Electronic form version 1.4