

ENME/CALCE Mentored High School Project Wins Engineering Division at the National JSHS

Saturday night in Huntsville, Alabama a University of Maryland Department of Mechanical Engineering/CALCE mentored high school student project developed by Phillip Sandborn, a Junior at Wilde Lake High School in Columbia Maryland, won 1st place in the Engineering Division at the 2007 National Junior Science and Humanities Symposium (JSHS). JSHS is the advanced research paper competition for high school science fair students.

The project entitled "A Random Trimming Approach for Obtaining High-Precision Embedded Resistors," focused on electronic resistor components fabricated inside of printed circuit boards. These "embedded" resistors are difficult to fabricate to required values and therefore have to be "trimmed" using lasers. Phillip's project developed and experimentally verified a computer simulation for the embedded resistor trimming process. The simulation was used to study embedded resistors containing randomly placed voids of varying size and a new trimming approach that allows higher precision embedded resistors to be obtained was proposed.

Phillip won the Maryland regional competition in April and competed at the national JSHS against the winners from 48 regional competitions in the United States, Puerto Rico, Europe, and the Pacific. The work was mentored by Dr. Peter Sandborn from CALCE.

The JSHS competition is sponsored by the U.S. Department of Defense and the Academy of Applied Sciences. A link to the JSHS competition is: <http://www.jshs.org/>

A version of the paper has been accepted for publication in the technical journal: IEEE Transactions on Advanced Packaging. The IEEE paper is available at: http://www.enme.umd.edu/ESCML/Papers/IEEE_Random_trimming_paper.pdf