



SBI database. She also serves as a senior representative on the Tompkins Textile Student Council and has served as a mentor for incoming freshmen in the program. She regularly volunteers during annual College of Textiles Open House and Alumni Tailgate events.

www.aatcc.org/students/awards/outstanding.htm

Charles H. Stone Scholarship

The AATCC Foundation Charles H. Stone Scholarship provides scholarships to junior and seniors majoring in polymer or textile chemistry fields at North Carolina State University (NCSU) or Clemson University. Four US\$6,000 Charles H. Stone Scholarships are awarded each year.



Christopher Dunn

Dunn majored in materials science and engineering with a focus on polymers and a minor in chemistry at Clemson University. He says that in the future, he “would like to experiment with the capabilities of high energy lasers as well as radiation detectors” and testing doped

optical fiber. Dunn says that the Stone scholarship “has given me the opportunity to succeed and complete my undergraduate career with no debts.”



Brittany Wilson

Wilson is double-majoring in Polymer Color Chemistry and Chemical Engineering at NCSU. She plans to pursue a master’s degree in polymer chemistry with research emphasis in polymer use in the medical industry, and then a career using polymers in new and

innovative ways in the medical field. “Ever since I volunteered with the American Red Cross (going on eight years), I have had a desire to help improve the quality of a person’s life through health and now

[through] chemistry,” says Wilson. She is grateful for the Stone Scholarship because “in a struggling economy, it is very difficult for my parents to fund education, so [the scholarship allows her] to graduate debt-free. This scholarship is providing me the opportunity to pursue my goals in the fields of study of polymers and chemistry, while easing my parent’s financial burden.”

Beau Horner and Justin Murphy, both of Clemson University, were also Stone Scholarship winners.

www.aatcc.org/foundation/grants/stone.htm

Piedmont Section Scholarships

The AATCC Piedmont Section currently awards five US\$3,000 Piedmont Section Scholarships per year. Students must reside in N.C., S.C., Va., or W.V. and attend Clemson University, North Carolina State University, Radford University, or Virginia Tech to apply.

Julisha Joyner

Joyner recently graduated with a degree in polymer & color chemistry, as well as textile engineering from NCSU. “With this scholarship, I was able to experience more in a semester than I could even dream about,” says Joyner. “I was able to visit new places, win awards, and finally graduate!” She says that her experiences last year helped her achieve a dream she has had “since freshman year”—to work with the NCSU Textile Protection and Comfort Center. “In the future, I hope to obtain my masters in textile engineering and hopefully my PhD.”

Lindsey Kern

Kern graduated in May 2012 with a degree in Polymer and Color Chemistry from NCSU. “This scholarship helped me to be able to graduate debt free and gain a lot of experience in the textile industry. I feel prepared to take the next step.”





Second place: *Water Stable Plant Protein Film from Camelina for Tissue Engineering* by Yi Zhao and Qiuran Jiang of the University of Nebraska-Lincoln.

will ultimately improve the experience of student living. There are currently many options for noise absorbing panels already in the market, and many of them perform to the needed expectations. While the functionality of these panels is already enough to meet demands, they come with a large price tag and many can be argued to be not aesthetically pleasing. Furthermore, there are few marketed specifically to consumer housing.

2.0 OBJECTIVE

The purpose of this project is to research, experiment, and design innovative noise-absorbing panels for interior use in student housing. This project seeks to develop a more affordable product by using post industry waste materials and one that can be marketed to the household consumer, specifically college students. A set of artistic prototype panels will be created and tested in the Raleigh, NC area. The success of the panels will be measured using a hand held sound meter device. The overall target reduction of the panels is to reduce sound decibel levels to be between 20 dB(A) and 40 dB(A).

3.0 MATERIALS AND METHODS

Materials

- Sound Reduction Material (PLA cotton/poly blend needle punched non woven felt high density thickness)
- Cardboard spacers with wash fiber filling

Empty Room, A-Vol 50%	Paneled Room, B-Vol 50%
Test 1: 54 dB	Test 1: 44 dB
Test 2: 56 dB	Test 2: 47 dB
Test 3: 56 dB	Test 3: 47 dB
Test 4: 55 dB	Test 4: 47 dB
Test 5: 55 dB	Test 5: 46 dB
Mean: 55.2 dB	Mean: 46.2 dB
Sound Reduction Volume 100%: 16.87%	Sound Reduction Volume 50%: 16.3%

This experiment was performed in an enclosed space. This makes the results different from a dorm room. However, the test method is still the same. Noise in sound absorbency. The results show that the needle punched non woven fabric the noise is significantly reduced.

Interestingly, it was noticed that the percent of sound reduction between the volume at 100% and 50% was not significantly different. This leads to the conclusion that regardless of how noisy the dorm room is, the sound absorbing panels will reduce the noise by the same percent.

During sound measurement it is important to maintain the same environment for each test. For example, the speaker placement should be in the exact same location to keep any differences to a minimum.

The overall sound reduction of approximately 16% shows that the needle punched non woven material successfully reduced the sound in an enclosed space. Further testing in other areas is

Comhairruij Maana Li

All of the entries were excellent and the judges had a difficult task determining the winners. The judging was administered by Radhakrishnaiah Parachuru of the Georgia Institute of Technology, Robina Hogan of the United Soybean Board/Hogan Consulting, Kanti Jasani of Performance & Technical Textile Consulting, and Seshadri Ramkumar of Texas Tech University.

Research Support Grant Report

Mark Chan, Cornell University, delivered a project report for the 2011-2012 AATCC Research Support Grant he received for his masters thesis project, the *Surface Modification of Microporous Polypropylene Membrane by UV-Initiated Grafting with Poly(ethylene glycol) diacrylate*. "In this study, poly(ethylene glycol) diacrylate (PEGDA) was surface grafted, through UV-initiated grafting, onto a microporous polypropylene (PP) membrane to develop and control a moisture-sensitive porous structure," says Chan. He says that this surface modification was shown to improve hydrophilicity of the hydrophobic polypropylene membrane. The grafted PEGDA was shown to respond to moisture, decreasing pore size in response to changes in relative humidity. "This moisture-responsive property can enhance protection of the membrane when exposed to possible liquid-borne pathogens," says Chan. "This will allow for a functional membrane that limits the transport of liquid-borne pathogens while providing transport of moisture vapor away from the body."

Functional/Smart/Nano Materials winners

First place: *Nanowire-Structured Based Hybrid Cell for Harvesting Solar and Mechanical Energies* by Chen Xu of the Georgia Institute of Technology

DISCUSSION

one set at 100%, the sound was greater than needle punched 80% was found to be 16.3%. The results



5.0 CONCL

Second place: *Effects of Long-term Chemical Treatment on the Electrical Resistance of Poly(3,4-ethylenedioxythiophene) on Textiles* by Christopher DiFranco and Jinlin Cai of the University of Massachusetts-Dartmouth

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Test 2: 56 dB	Test 2: 47 dB
Test 3: 56 dB	Test 3: 47 dB
Test 4: 55 dB	Test 4: 47 dB
Test 5: 55 dB	Test 5: 46 dB
Mean: 55.2 dB	Mean: 46.2 dB
Sound Reduction Volume 100%: 16.87%	Sound Reduction Volume 50%: 16.3%

This experiment was performed in an enclosed closet with a laptop computer as the volume source. This makes the results different from what they would be in an actual dorm room. However, the test method is still the same. Needle punched non woven fabric is the best for use in sound absorbency. The results show that with the PLA cotton/polyester blend needle punched non woven fabric the noise is significantly absorbed making the room a quieter place.

Interestingly, it was noticed that the percent of sound reduction between the volume at 100% and 50% was not significantly different. This leads to the conclusion that regardless of how noisy the dorm room is, the sound absorbing panels will reduce the noise by the same percent.

During sound measurement it is important to maintain the same environment for each test. For example, the speaker placement should be in the exact same location to keep any differences to a minimum.

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