

1-2015

Isabel Stafford presents research to National Security Agency

Lucero Castellanos-Aguirre
Andrews University

Follow this and additional works at: <https://digitalcommons.andrews.edu/luh-pubs>



Part of the [Mathematics Commons](#)

Recommended Citation

Castellanos-Aguirre, Lucero, "Isabel Stafford presents research to National Security Agency" (2015). *Lake Union Herald*. 43.
<https://digitalcommons.andrews.edu/luh-pubs/43>

This Student Stories is brought to you for free and open access by the Lake Union Herald at Digital Commons @ Andrews University. It has been accepted for inclusion in Lake Union Herald by an authorized administrator of Digital Commons @ Andrews University. For more information, please contact repository@andrews.edu.



Constance Gane

Jasmine Saunders, a 2010 behavioral sciences graduate, uncovers a figurine on a dig in Jordan in 2009.

Horn Museum featured in *The New York Times*

The Siegfried H. Horn Museum, part of the Institute of Archaeology at Andrews University, recently was featured in *The New York Times*. Author Geraldine Fabrikant, arts writer for the *Times*, contacted curators of several small religious archaeology museums, including Constance Gane, curator of the Horn Museum, and curators of the Badè Museum of Biblical Archaeology (Pacific School of Religion, Berkeley, Calif.) and the Kelso Museum of Near Eastern Archaeology (Pittsburgh Theological Seminary).

The article, which resulted from several conversations between Fabrikant and Gane, focused on Andrews' acquisition of a collection of rare figurines for study and temporary exhibition. These figurines came from the Andrews archaeological dig site at Tall Jalul in Jordan, and were excavated between 1992 and 2012.

"It is significant that Fabrikant contacted the Horn Museum, because it had come to her attention that archaeologists at Andrews University are

leading specialists in biblical archaeology," says Gane. "It is exciting that a prominent publication such as *The New York Times* is aware of the University's contribution to the field."

The loan comes as a result of a long-term relationship between Andrews and the Jordanian Antiquities Authority.

The Horn Museum houses almost 9,000 ancient Near East artifacts, including coins, pottery, sculptures, tools, weapons, figurines, jewelry, seals and glass vessels, as well as over 3,000 ancient cuneiform tablets dating from Sumerian times through the Achaemenid period.

Andrews University has been excavating in Jordan for over 45 years, and recently has begun to excavate at an early Christian site in Sicily, Italy. The temporary exhibit will run from December 2014 until April 2015.

Read *The New York Times* story at <http://andrews.edu/go/horn-museum-nyt>.

Amanda McGuire-Moushon,
administrative assistant, Institute of
Archaeology & Horn Archaeological Museum
at Andrews University

Isabel Stafford presents research to National Security Agency

Isabel Stafford, a senior math and physics major at Andrews University, recently completed an internship through the Math Department of North Carolina State University in the Research Experience for Undergraduates program (REU).

Stafford collaborated with two other undergrads and a mentor. A total of 47 students worked on 14 different projects through the REU program.

"We designed a cost-efficient, permanent-magnet klystron capable of

powering a future high-energy particle accelerator," shared Stafford.

Klystrons take the power from an electron beam and turn it into radio-frequency power. The problem with these klystrons is that their power output is limited by the energy of the electron beam.

"The solution we found was putting several electron beams in the same klystron," Stafford says.

After working for almost two months, Stafford and her team managed to design a multiple-beam klystron that outputs about 40 megawatts of power. Stafford and her group then presented these findings to the National Security Agency (NSA). In another decade or so, their design possibly could be used in what will replace the Large Hadron Collider, the most powerful particle accelerator ever built.

"My mentor, Dr. Hien Tran, told us that a few representatives from the NSA would be dropping by to check out everyone's research," said Stafford. "They also wanted to see a few in-depth presentations about the summer's research. Dr. Tran and the other program coordinators decided they wanted my group to present because of the success and practicality of our research."

Although Stafford has yet to decide on a career goal, she very much looks forward to graduating in May 2016, and is grateful for the experience and knowledge she has gained through this internship.

"The research program was a really great experience," Stafford says. "I got to hang out in North Carolina, with a bunch of other people who really like math and physics, for a whole summer, while doing research that's actually important."

To learn more about undergraduate research opportunities at Andrews University, visit <http://andrews.edu/research>.

Lucero Castellanos-Aguirre, student writer,
Division of Integrated Marketing
& Communication