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HS/HSL

innovation space

Newsletter

Issue number 29

Makers @ HS/HSL: Faculty Spotlight

Maker:	Dr. Mary Anne Melo , DDS, MS, PhD
Affiliation:	University of Maryland School of Dentistry
Project:	Develop novel strategies to reduce the initiation and progression of tooth decay
Used:	HS/HSL Hands-on Prototyping Consultations

Dr. Mary Anne Melo, DDS, MS, PhD, is an Associate Professor at the University of Maryland School of Dentistry, and Director of the [Division of Operative Dentistry](#). In these positions she works as educator, clinician, and scientist. Her clinical areas of expertise include minimally invasive dentistry, management of patients with high caries risk, and esthetic dentistry. As a scientist she studies the interactions between oral biofilms and dental biomaterials using advanced oral biofilm models, including genetically-engineered and patient-derived versions of inoculum.

It's this research that lead Dr. Melo to collaborate with the HS/HSL Innovation Space.

"My lab investigates therapies that better inhibit the formation of bacterial biofilm over the teeth", she states. "We explore the use of nanoparticles in the development of bioactive dental materials to reduce the activities of caries-related bacteria. We also explore the use of antimicrobial photodynamic therapy (using low power lasers) on dental plaque."

Such research often requires custom tooling for experimentation and data collection. A handful of her PhD students and staff have worked with the HS/HSL Innovation Space to design and 3D print custom equipment used in various projects (see [past issue number 19](#)).

"The design process involved in making new tools is a big learning curve for us, it's not where our expertise lies. We've been able to save a lot of time by leveraging the library's skills in this regard", observes Dr. Melo.

Dr. Melo obtained her DDS, MS, and PhD from the Federal University of Ceara, Brazil. She was a Fulbright fellow (2011-2012) at the School of Dentistry's Biomaterials and Tissue Engineering Division. She is a current member of the Academy of Operative Dentistry, the International Association for Dental Research, the Society for Color and Appearance in Dentistry, and the American Academy of Cosmetic Dentistry.



More Tools Available in the Innovation Space!



A new cart located in the HS/HSL Innovation Space, referred to as the "Messy Cart", provides a range of tools to assist in your creative endeavors. Items currently available include the following list, with more on the way!

- Small hand tools
- Virtual Reality gear
- Electronics gear
- Craft supplies
- Safety supplies

All resources are available for use on premise, first-come, first-served.

Emerging Tech in the News and Literature

1. [3D Printed Teeth with Enamel and Dentin Layer for Educating Dental Students in Crown Preparation](#) ([nih.gov](#))
2. [How MICA and Shock Trauma Center at the University of Maryland are Using Virtual Reality to Help Patients Cope with Spinal Cord Injuries](#) ([baltimoresun.com](#))
3. [3D Printing and the Murky Ethics of Replicating Bones](#) ([undark.org](#))

Upcoming HS/HSL Innovation Space Workshops

Introduction to 3D Printing

- February 25, 2020

Introduction to 3D Modeling

- March 4, 2020

[Register for our free workshops](#)

New to the HS/HSL Innovation Space?

The Innovation Space is designed for innovative and collaborative hands-on learning experiences. It offers a [HTC Vive VR system](#), three [3D printers](#), two [3D scanners](#), a plotter for [poster printing](#), a [zSpace](#) virtual reality station, [Google Cardboard](#) viewers, a large DNA model, two molecule kits, a button maker, and a 3D printing pen. The staff provides orientations as well as workshops on a regular basis for those who are new to 3D printing and 3D scanning.

For more information, visit our webpage at <http://www.hshsl.umaryland.edu/services/ispace/>.



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