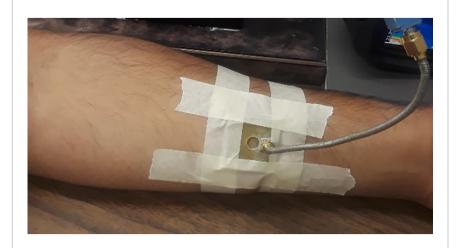
Non-Invasive Skin Perfusion Measurement

ID# 2018-4831





Novel method conducted on human arm.

Technology Summary

Deep tissue and skin perfusion is a critical factor in the management of many medical conditions and procedures. Researchers have developed a novel device and method for quantitatively assessing blood perfusion. This device would have applications in plastic surgery and other types of procedures involving thick skin flaps. The tissue is first heated with microwave heating (MWH). Once the tissue is heated, it is then measured with infrared radiometry (IRR) to detect the blood perfusion non-invasively.

Application & Market Utility

Conventional perfusion measurement techniques tend to have limited clinical use due to a lack of reliable and cost-effective devices capable of measuring the absolute blood perfusion rate. Compared to competing technologies, this technology is less invasive, more quantitative, and less costly. It can also be used both intra-operatively and post-operatively to assess blood perfusion, so that corrective procedures can be performed before the patient is discharged.

Next Steps

Patent pending. Seeking licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Licensing |

Keywords

- microwave heating
- thermography
- blood perfusion
- infrared radiometry
- plastic surgery

Researchers

Mohammad-Reza Tofighi

Associate Professor of Electrical Engineering Online Bio

Anilchandra Attaluri

Assistant Professor of Mechanical Engineering Website

Dino Ravnic

Plastic Surgeon

Website

Originating College

PSU Harrisburg

Office of Technology Management Contact

Martinez, Alison



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.