

SFU Press Releases Collection

These archival copies have been generated from web press releases maintained and originally written by SFU Communications and Marketing. Where possible, an effort has been made to preserve the public comments left on the website as well as any included photos or other images. All textual content should be faithful to the original press releases; contact numbers have been removed but they have not otherwise been altered in any way. However, this collection of documents spans multiple generations of web authoring software and not all formatting will be exact.

MEDIA RELEASE

Researchers create new diagnostic tool for detecting breast cancer

April 06, 2017

[Tweet](#) [Facebook](#) [Pinterest](#) [Email](#) [Print](#)

Contact:

Farid Goldnaraghi, MSE director, 778.782.8054; fmgoldnar@sfu.ca

Majid Shokoufi, MSE post-doctoral researcher, mshokouf@sfu.ca

Marianne Meadahl, University Communications, 778.782.9017; Marianne_Meadahl@sfu.ca

Video: <http://at.sfu.ca/rWChwM>

Photos: <http://at.sfu.ca/SokZpq>

Researchers create new diagnostic tool for detecting breast cancer

Optical diagnostic probe complements other screening methods, is non-invasive and can read deep into tissue

Simon Fraser University researchers have created a patent-pending, optical diagnostic probe capable of more safely and non-invasively detect early stage breast cancer.

Recent testing of their diffuse optical breast-scanning (DOB-Scan) probe during an initial clinical study at Surrey's Jim Pattison Outpatient Care and Surgery Centre found that it can conclusively confirm cancer, while also providing more detail about "suspicious tissue" than conventional methods.

How it works

The DOB-Scan probe uses near-infrared light to capture cross-sectional images of breast tissue. The captured images represent concentrations of four main components in the breast—oxy-hemoglobin, deoxy-hemoglobin, water and fat, which are markers of healthy and cancerous tissue in the breast.

"The reconstructed images using the probe correlated well with cancer locations obtained by other clinical modalities such as X-ray mammography and MRI," says Majid Shokoufi, a post-doctoral fellow in the School of Mechatronics Systems Engineering (MSE).

He has spent the past five years refining the technology, and completed his PhD focusing on the research last fall. "We are also able to read deep within the tissue and capture more detailed information about what it contains."

Device benefits

Improved screening is promising for women of all ages, notes Farid Golnaraghi, MSE director and research lead. "Since mammography is recommended for women over 50 and requires radiation, our research has led to a cost-effective, non-invasive method that can complement other screening methods and successfully diagnose breast cancer in its early stages," says Golnaraghi.

He began the research eight years ago initially focussing on oral and skin cancer. After consulting with the BC Cancer Agency, however, he turned to the critical area of breast cancer diagnosis.

His team includes Majid Shokoufi, graduate student Zahra Haeri, who carried out the study's data analysis, and Mozghan Jenab, a clinical research associate at SFU and the Jim Pattison Outpatient Care and Surgery Centre, where she worked with Dr. Rhonda Janzen to carry out the clinical study.

Golnaraghi is hopeful the probe can eventually have a significant role in breast tumor detection and monitoring. Next steps include broadening the study base to include women who have not undergone cancer diagnosis. With a patent filed, the team has plans to commercialize the probe.

Why it matters:

- Breast cancer affects almost one in eight North American women during their lifetime and it is the second leading cause of cancer-related death in women.
- While popular methods in breast cancer imaging include X-ray mammography, ultrasound and magnetic resonance imaging (MRI), the DOB-Scan probe can safely provide more detailed, instant results.

ABOUT SIMON FRASER UNIVERSITY:

As Canada's engaged university, SFU is defined by its dynamic integration of innovative education, cutting-edge research and far-reaching community engagement. SFU was founded 50 years ago with a mission to be a different kind of university—to bring an interdisciplinary approach to learning, embrace bold initiatives, and engage with communities near and far. Today, SFU is Canada's leading comprehensive research university and is ranked one of the top universities in the world. With campuses in British Columbia's three largest cities – Vancouver, Burnaby and Surrey – SFU has eight faculties, delivers almost 150 programs to over 35,000 students, and boasts more than 145,000 alumni in 130 countries around the world.

-30-

Simon Fraser University: Engaging Students. Engaging Research. Engaging Communities.

- [For the Media](#)
- [For Faculty and Staff](#)
- [About SFU](#)
- [SFU News](#)

[Admission](#)

[Programs](#)

[Learning](#)

[Research](#)

[Community](#)

[About](#)

[Maps + directions](#)

[Library](#)

[Academic Calendar](#)

[Road Report](#)

[Give to SFU](#)

[Emergency Information](#)

CONNECT WITH US

[Facebook](#)

[Instagram](#)

[Twitter](#)

[YouTube](#)

CONTACT US

Simon Fraser University

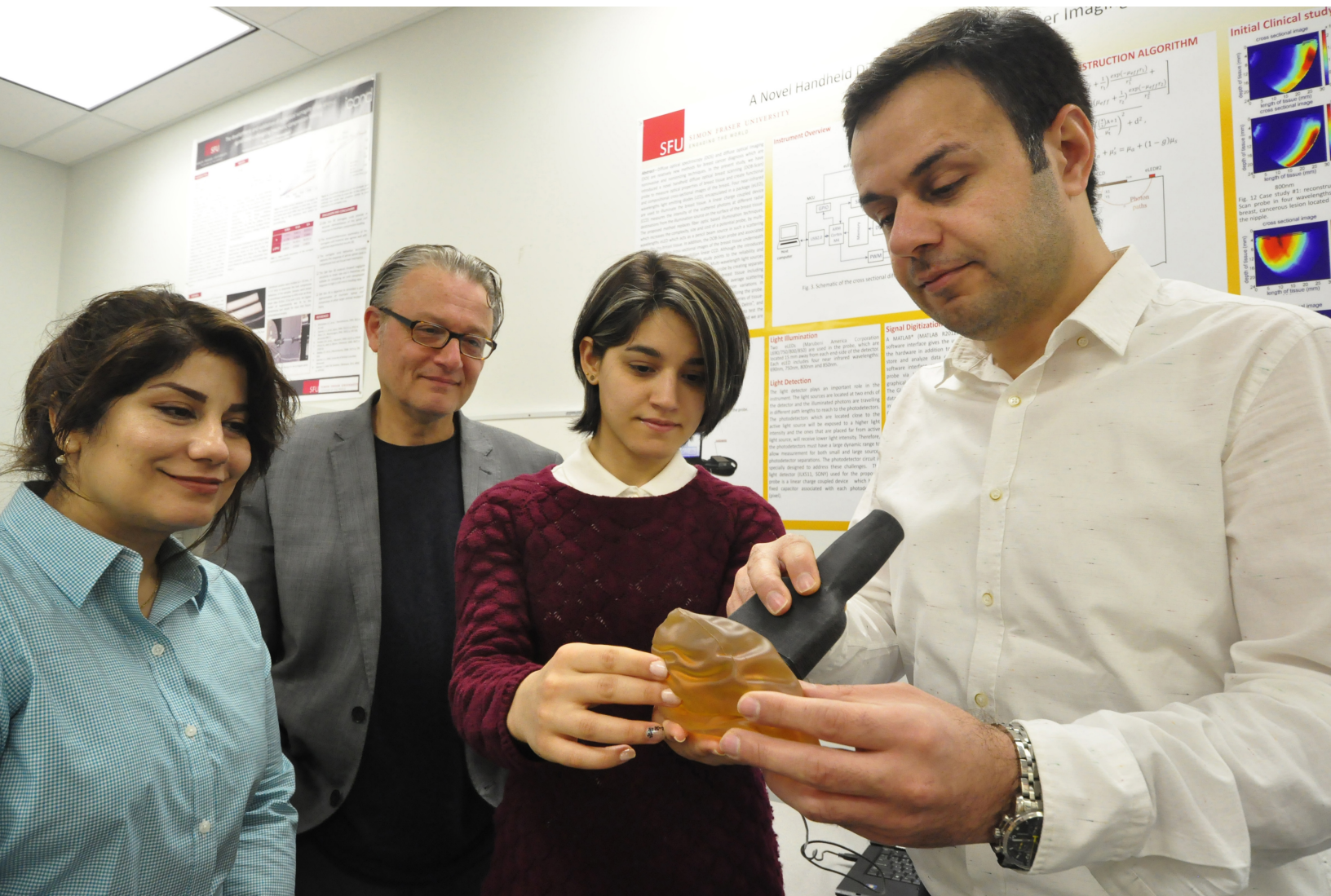
8888 University Drive

Burnaby, B.C.

Canada V5A 1S6

[Terms and conditions](#)

© Simon Fraser University



Light Illumination
The light source is an important role in the experiment. The light sources are located at two ends of the detector and the illuminated position are traveling in different path length to reach to the photodetectors. The photodetectors which are located close to the other light source will be exposed to a higher light intensity and the area that are placed far from active light source will receive lower light intensity. Therefore, the photodetectors must have a large dynamic range to measure the intensity for both small and large scattering measurements. The photodetector circuit is specially designed to address these challenges. The light sensor (S4333, 100W) used for the purpose is a linear charge coupled device which is read out sequentially associated with each detector.

Signal Digitization
A MATLAB software interface gives the user the hardware in addition to data and analysis data software. The user can control the hardware and analyze the data.