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Title

Detection of tissue optical index for portable noninvasive chemotherapy monitoring

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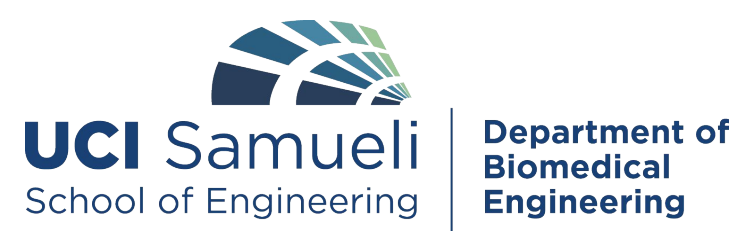
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Peer reviewed

Detection of tissue optical index for portable noninvasive chemotherapy monitoring

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Cancer as a disease has defined our current era. In the United States alone, two out of every five people will develop cancer at some point in their lives. Chemotherapy, although powerful, does not always reduce tumor size. For these patients, called non-responders, it can take up to 18 weeks to change their course of action because chemotherapy is currently monitored through palpation, or feeling for tissue stiffness. The result is wasted money on the initial drugs, precious time lost, and a plethora of side effects.

Our device, Oncospect, is a tool for oncologist to quantitatively track the progress of chemotherapy on a metabolic level. Benefits include lower costs, less side-effects, and better patient outlook. Our aim is to empower oncologists to make personalized treatment plans for patients.

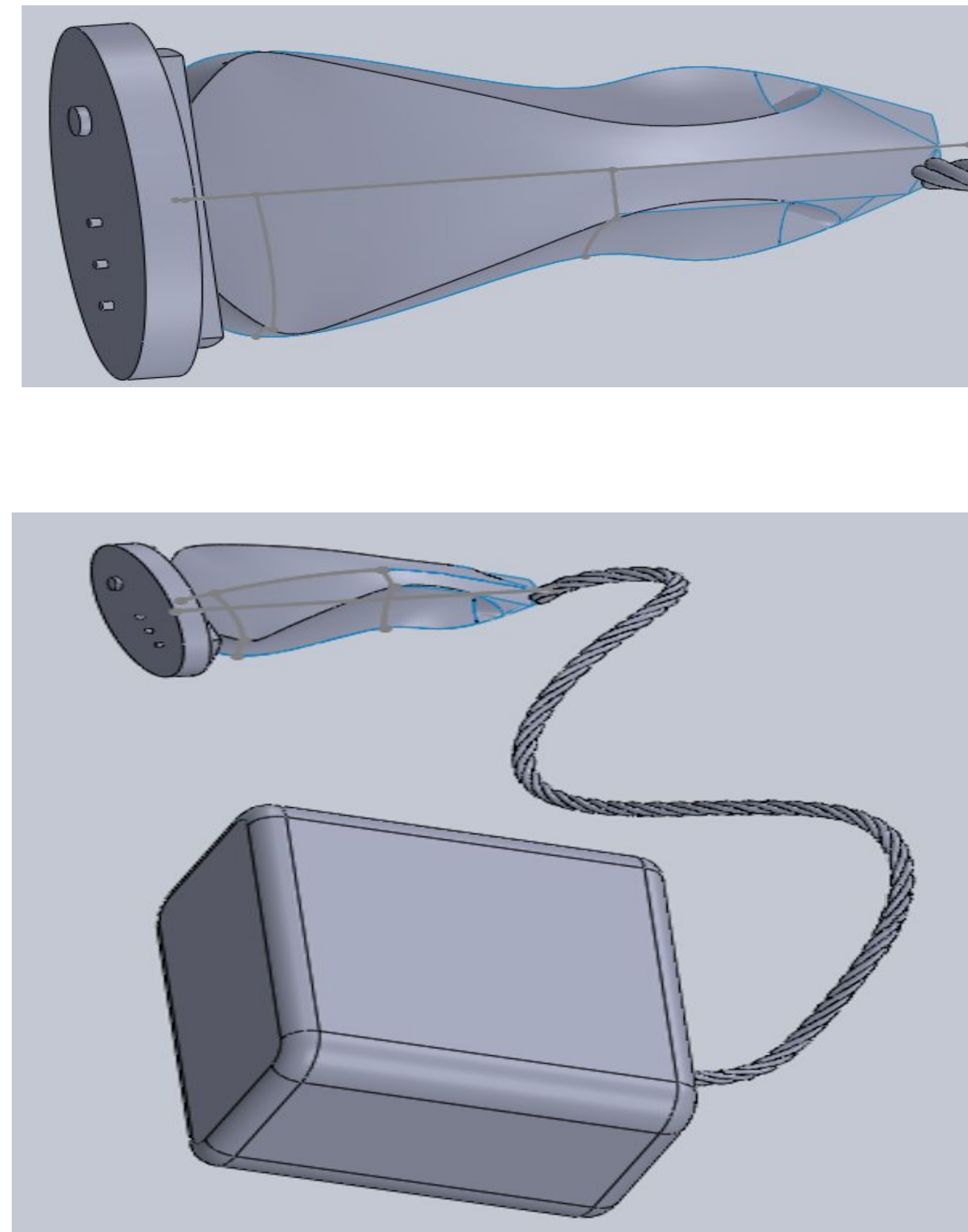


Figure 1: Device Schematic

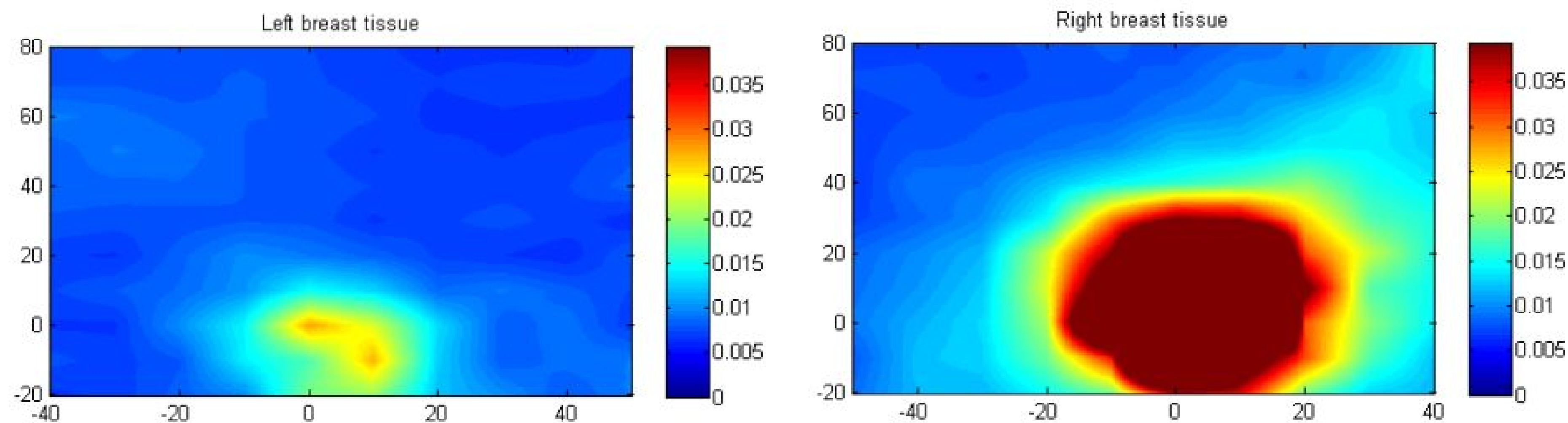


Figure 2: Device Images of Cancerous Breast (Right) and Normal Breast (Left)

Task	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Matlab Breast Tumor Reflectance Model	●	→						
Device Circuitry Optimization	●	→						
Device Circuitry Miniaturization		●	→					
Integration Of Matlab Model & Circuitry			●	→				
Initial Prototype Design			●	→				
Business Plan Competitions	●	→						
Prototype Testing & Iteration					●	→		
Presentation of Prototype							●	→

Technology	Cost	Accuracy	Comfort	Real-Time
MRI	--	++	-	-
Mammography	-	+	-	-
CT Scan	-	+	+	-
Ultrasound	+	-	+	+
Palpation	++	--	+	-
OncoSpect	++	+	++	++



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We would like to thank Dr. Bruce J. Tromberg, and the graduate candidates at the Beckman Laser Institute for their support and encouragement to make this ongoing project a success by the end of the academic year.