

YEDITEPE UNIVERSITY
Department of Biomedical Engineering

SEMINAR

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Engineering Building B-319

**Microfabrication Techniques for Printing on PDMS
Elastomers for Antenna and Biomedical Applications**

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The demand for flexible substrates in the electronics industry and medicine has highlighted the importance of applicable printing techniques on these materials. Neural prosthetics interfacing with soft tissues and tight packaging requirements in the high-frequency electronics field require application-specific fabrication methodologies for printing conductors on or embedded in flexible substrates. The purpose of this dissertation is to introduce novel fabrication techniques for printing metal patterns on silicone elastomers. In pursuing this goal, two applications in the biomedical and antennas fields are given. These applications require printing of metals on silicone elastomers and the requirements of these applications are met with application-specific microfabrication processes. The initial project involves printing microwave structures on PDMS-ceramic composites. These structures include transmission lines, a patch antenna and a feeding pattern for a GPS antenna. The second work requires the fabrication of a microelectrode array for

recording neural signals from the brain cortex surface. Microfabrication techniques have been developed for the device fabrications.

Elif Apaydın / Biography

Elif Apaydın, lisans derecesini 2002 senesinde ODTÜ Elektrik Elektronik Mühendisliği'nden almıştır. Daha sonra, master çalışmalarını bilgisayar dalı üzerinde yoğunlaşarak, The Ohio State University'deki Bioinformatics ve Electrical and Computer Engineering Bölümü'nde tamamlamıştır. Biyomedikal Mühendisliği disiplininde tamamladığı doktora çalışmalarını ise yine The Ohio State University'den 2009 senesinde elde etmiştir. Doktora çalışmalarındaki araştırma ilgi alanları "BioMEMS, Application Specific Surface Modifications on PDMS, Polymer-Ceramic Composites, Flexible Sensors for Bio Applications" başlıkları altında toplanabilir. Doktora sonrası çalışmasını ise Cornell University'de Biofluidics grubunda, kanser çalışmalarına yönelik chip fabrikasyonu konusunda yapmıştır.