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**ELECTRICAL & COMPUTER
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TEXAS A & M UNIVERSITY

SEMINAR

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Reconfigurable Miniaturized SIW Antennas

by

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Abstract: There are so many applications in which an antenna needs to be mounted on a conductive surface such as a vehicle, an airplane, or even a human body. Antennas in these cases usually need to be high gain. On the other hand, the increasing number of commercial wireless services comes along with the increased antenna numbers that a user end device needs. The combination of these two points means that antennas must exhibit high gain, be mountable on conductive surfaces, and cover multiple services. For the first two requirements, the SIW antenna is a very good choice since it has a very high gain and, due to the cavity-backed structure, it can be mounted on almost any surface without affecting its performance. However, because of its narrow BW, it may not be a good choice to be used for multiple numbers of services, which is why tunability of the SIW antennas becomes important. The wide-range tuning of the SIW antennas is challenging due to their nature. In this work, two different methods of tuning a compact SIW antenna are presented and compared. The first method is based on capacitively loading the antenna using Varactor diodes, while the second method is based on implementing fluidically switchable vias. Pros and cons of each method will be discussed, and measurement results of two fabricated prototypes will be compared.

Ali Pourghorban Saghati (S'11) received the M.Sc. degree (honors) in electrical engineering from Ferdowsi University, Iran, in 2014. He is currently pursuing the Ph.D. degree in electrical and computer engineering at Texas A&M University, College Station, TX, USA. His research interests include miniaturized RF/microwave filters and antennas, and microwave chemical sensing.