AN ASSESSMENT OF MICROFABRICATION TO SENSOR DEVELOPMENT AND THE INTEGRATION OF THE SENSOR MICROSYSTEM

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ABSTRACT

Silicon-based microfabrication and micromachining techniques have been applied to produce various chemical and biological sensors. Some of these sensors have had scientific and commercial success. There are, however, limitations. A microfabricated sensor in itself does not constitute a microsystem for practical applications. Packaging of the sensor and interfacing connections between the sensors and external instruments, as well as providing appropriate energy to operate the sensor and its interfacing system, are important. The integration of these elements into a microsystem is a technical challenge. There are various approaches to develop each element in this microsystem. We will describe our own research efforts as a means of illustrating approaches in this endeavor. Specifically, a microfabricated telemetry system as a platform technology for interfacing application will be discussed. Also, the potential of producing planar structure thick film primary batteries for sensor application will be assessed.