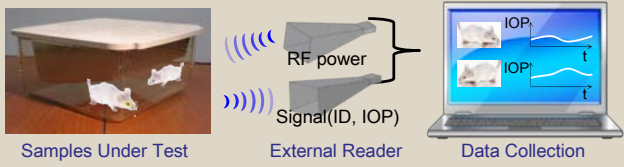


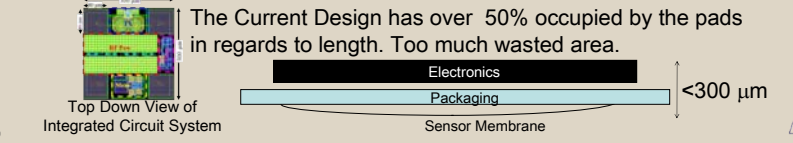
Dohyuk Ha<sup>1</sup>, Tse-Yu Lin<sup>1</sup>, Byung Guk Kim<sup>1</sup>, Sungwook Moon<sup>1</sup>, Jimin Maeng<sup>1</sup>,  
Yuehui Ouyang<sup>1</sup>, Pedro P. Irazoqui<sup>2</sup>, and William J. Chappell<sup>1</sup>. Project Lead: Simon John<sup>3</sup>

<sup>1</sup>School of Electrical and Computer Engineering, <sup>2</sup>Weldon School of Biomedical Engineering, and <sup>3</sup>Howard Hughes Medical Institute/Jackson Laboratory

### Technology and System Overview



### How do you connect to a tiny integrated circuit and sensor? Current IC Designs are Pad Limited.

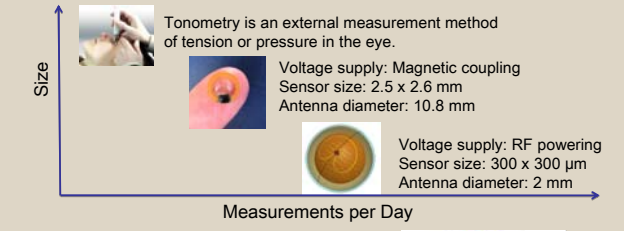
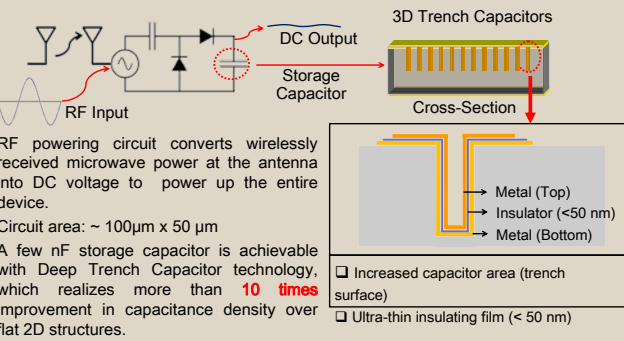


### Overview of Packaging Challenges

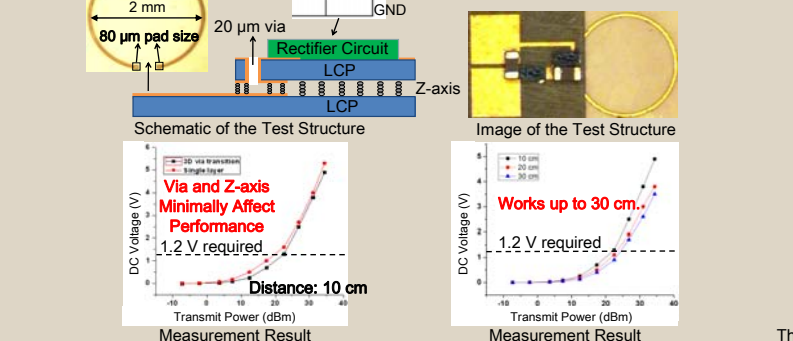
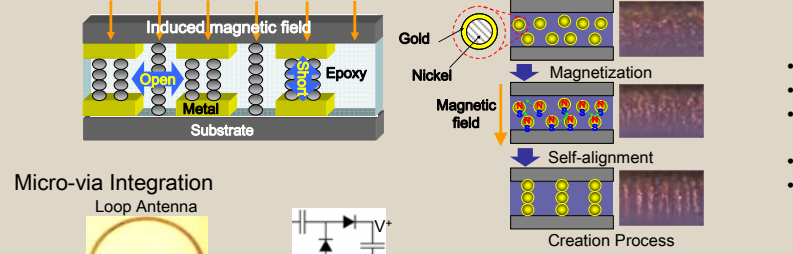


### How do you store the power to operate IC? No internal source is included

#### High Capacitance Density Deep Trench Capacitor

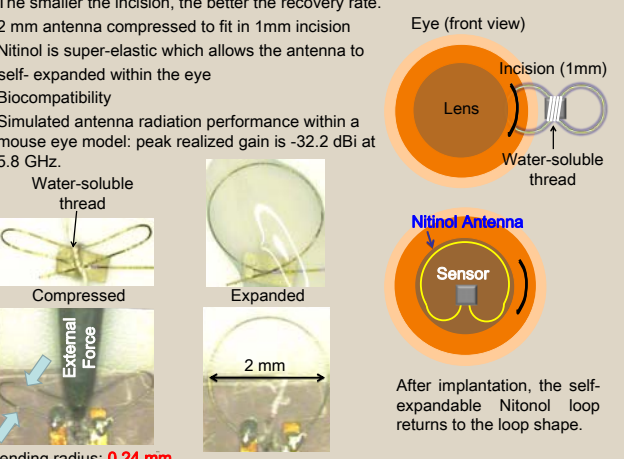


### Micro-scale Integration Solution: Z-axis Anisotropic Conductive Adhesive (ACA)



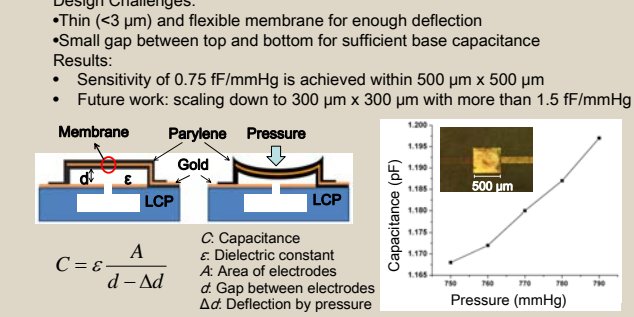
### How do you implant the sensor into the mouse eye in 1 mm incision?

#### Self-expanding Loop Antenna



### How do you create a small sensor to measure the variation of IOP?

#### Miniaturized MEMS Pressure Sensor



Small RF transition loss of the Z-axis ACA and 3D vias demonstrates that the packaging techniques are suitable for the RF interconnection between antenna and IC.

### Acknowledgements

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