Rechargeable High Volumetric Capacity Battery via All Active Material (AAM) Electrode Architecture

Problem Identification

- Wearable & implantable low power electronics ٠
- Limited functions, short duration, unreliable data due to limited battery . energy density
- Solutions extendable to agriculture and human health applications





Team

- 7 Patent Applications
- **I-CORPS** Participation ٠
- Incubator Lab Participation, Darden School of Business at University of Virginia



Chen Cai, Ph. D. CEO at Torpel



Cycle Life

100

100

100

1000

Capacity (mAh)

1.0

5.5

3.4

11.7

Gary Koenig, Ph. D. **President at Torpel Professor in Chemical Engineering** at University of Virginia

Capacity with this Technology



Form Factor

MS412FE

MS621FE

This Design*

ML614



^{*} coin cell with volume of 100 mm³

Proposed Innovation



Polymer Binder Conductive Additive

Active Material

Conventional Composite Electrode



All Active Material (AAM) Electrode

Improve Volume Utilization

- AAM electrode has higher volume utilization
- 50% more capacity than competitors

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(mAh)

1.5

8.9

5.0

This Design