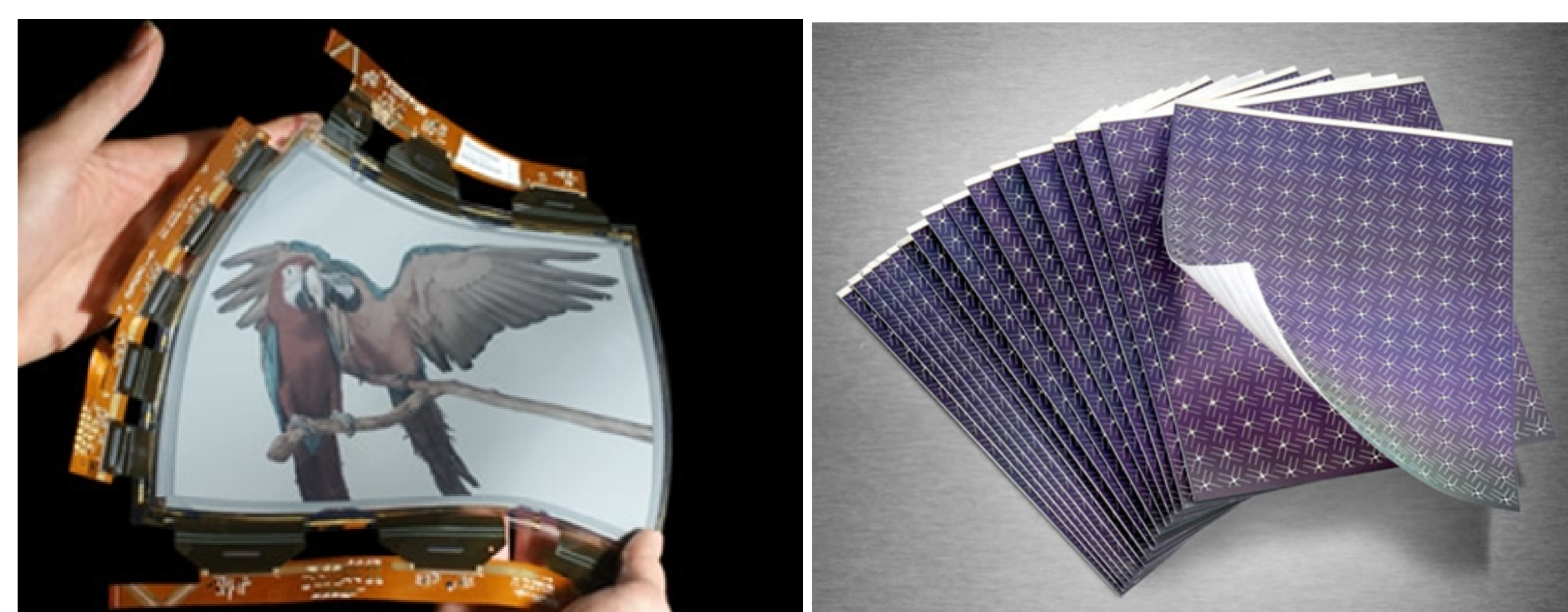


Motivation



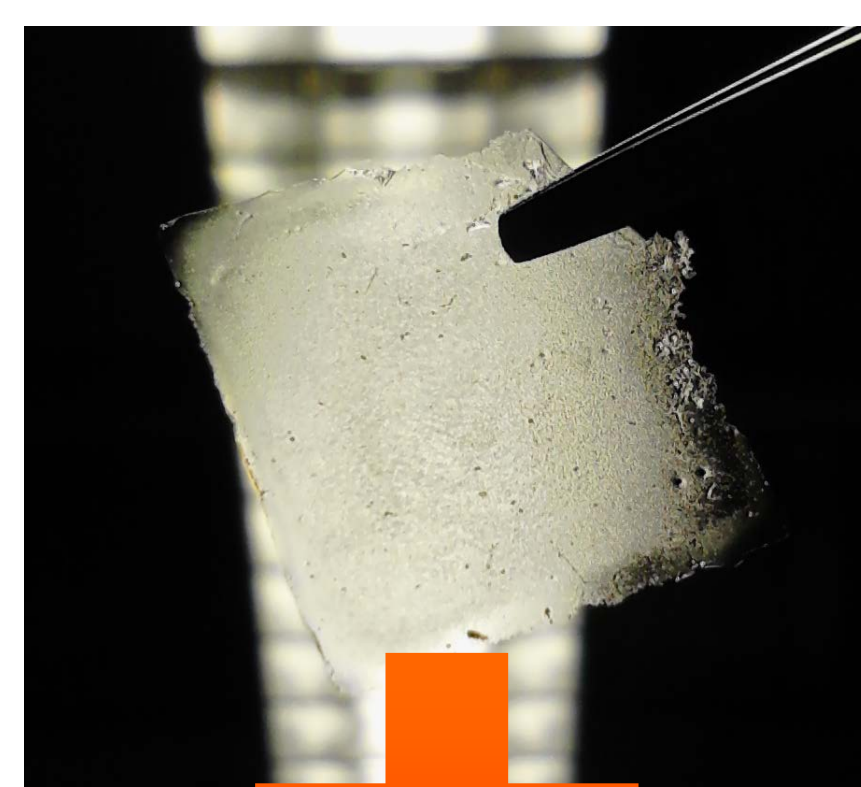
Plastic Logic, Ltd.

Nanosolar Corp.

Current battery form factors are **inadequate**

- Rigid
- Many non-rechargeable
- Form limited by electrolyte

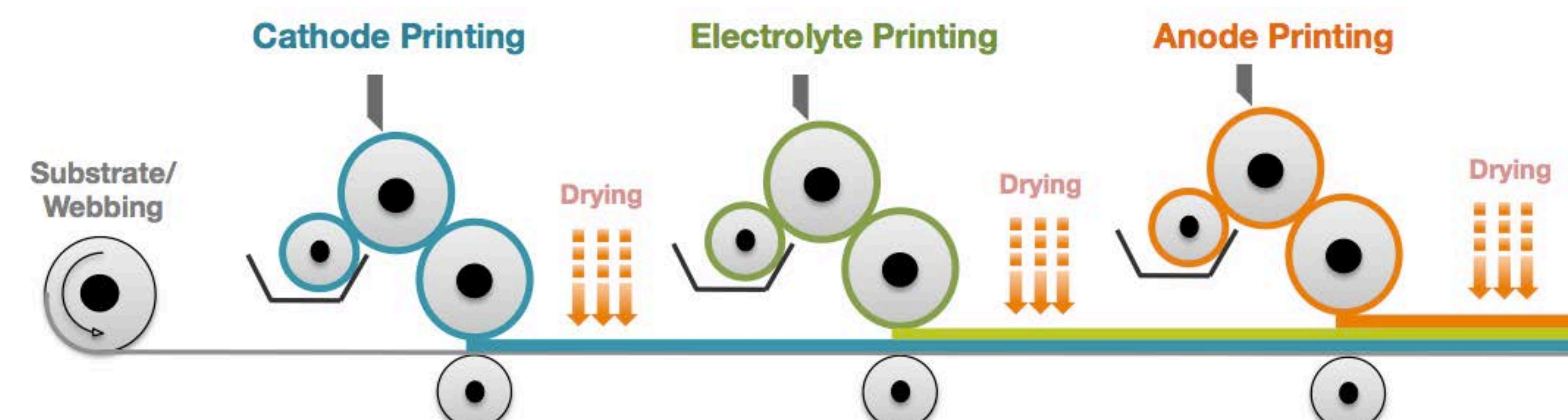
Proposed Solution



Gel Polymer Electrolyte (PVDF-HFP)



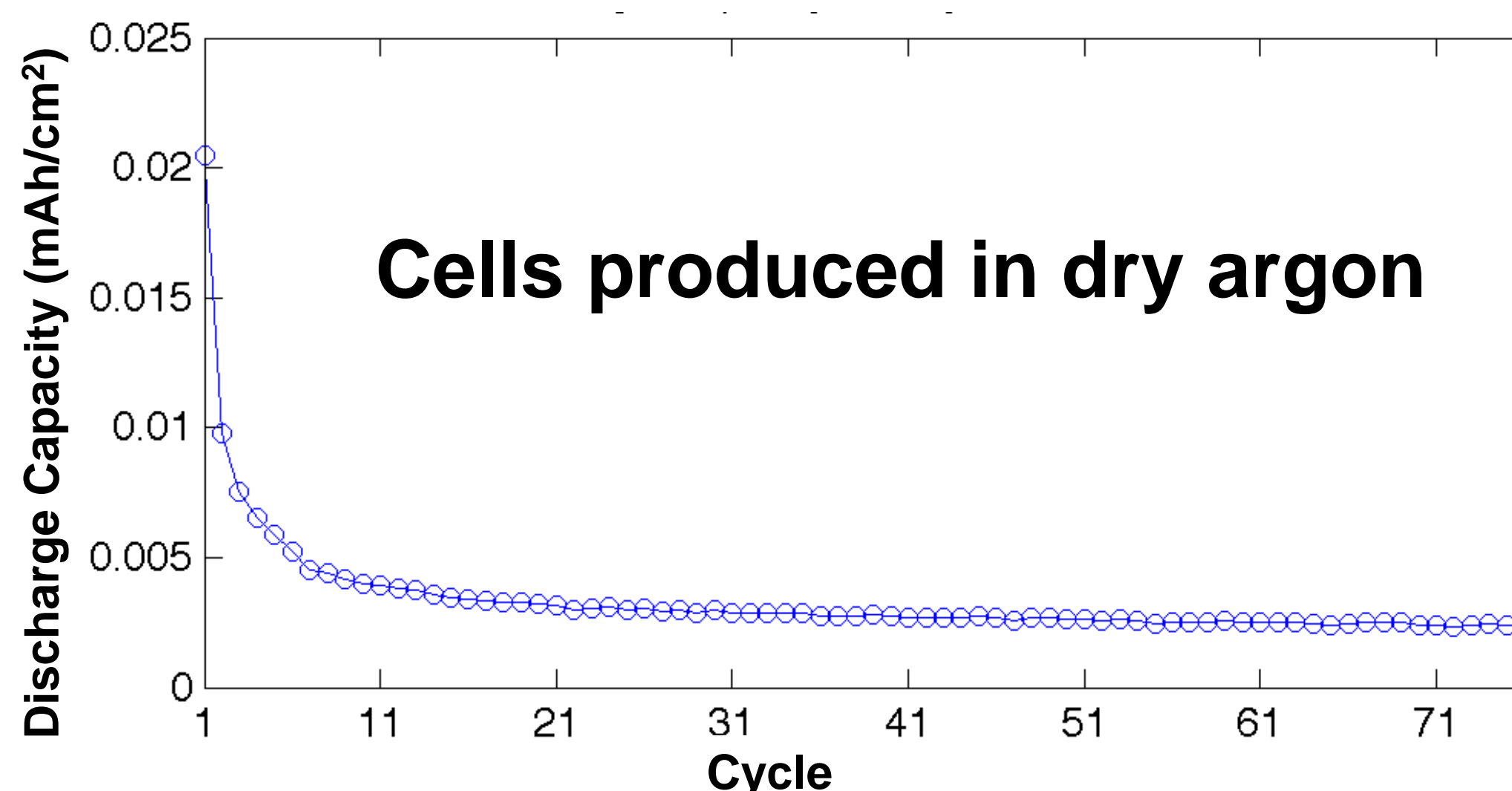
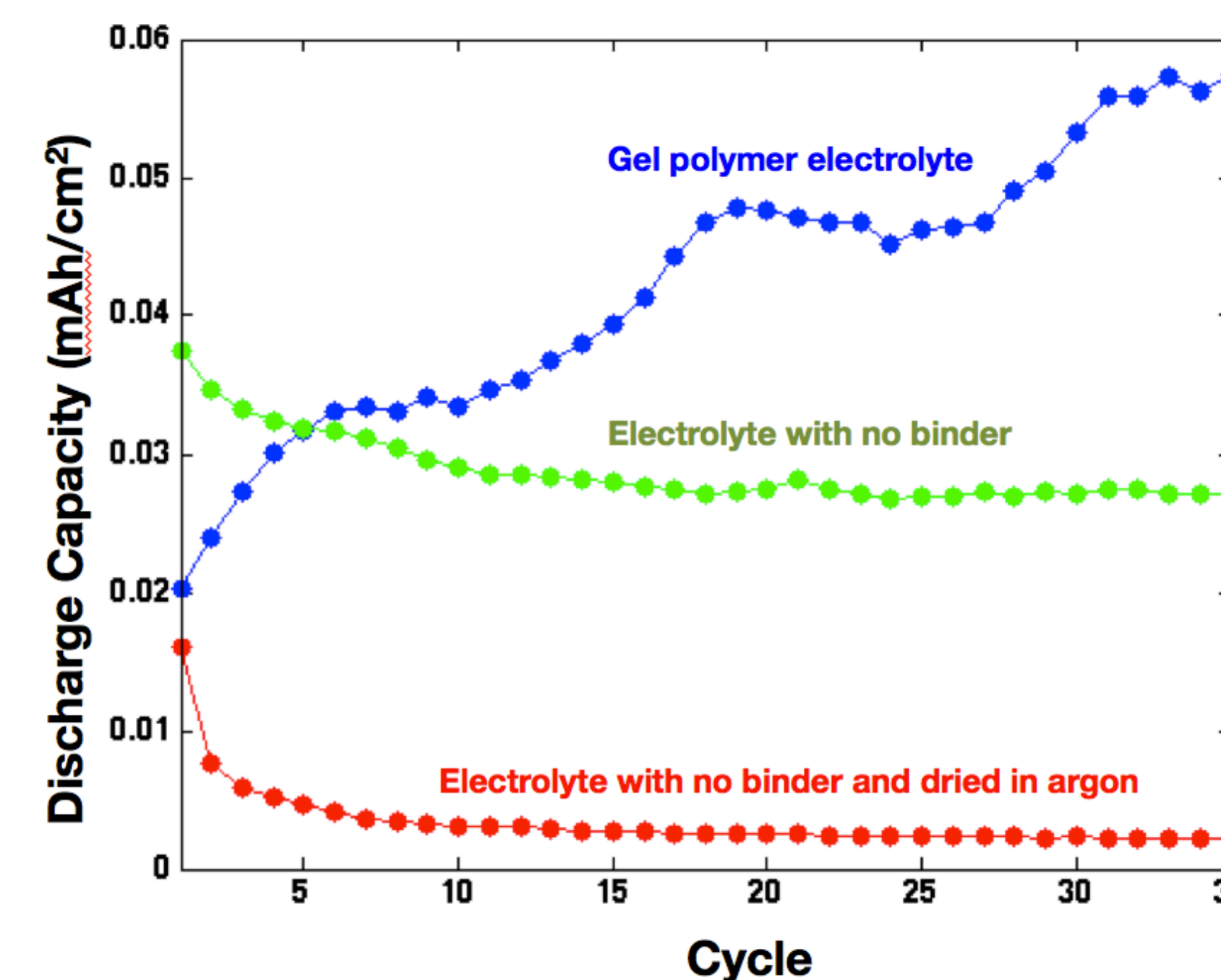
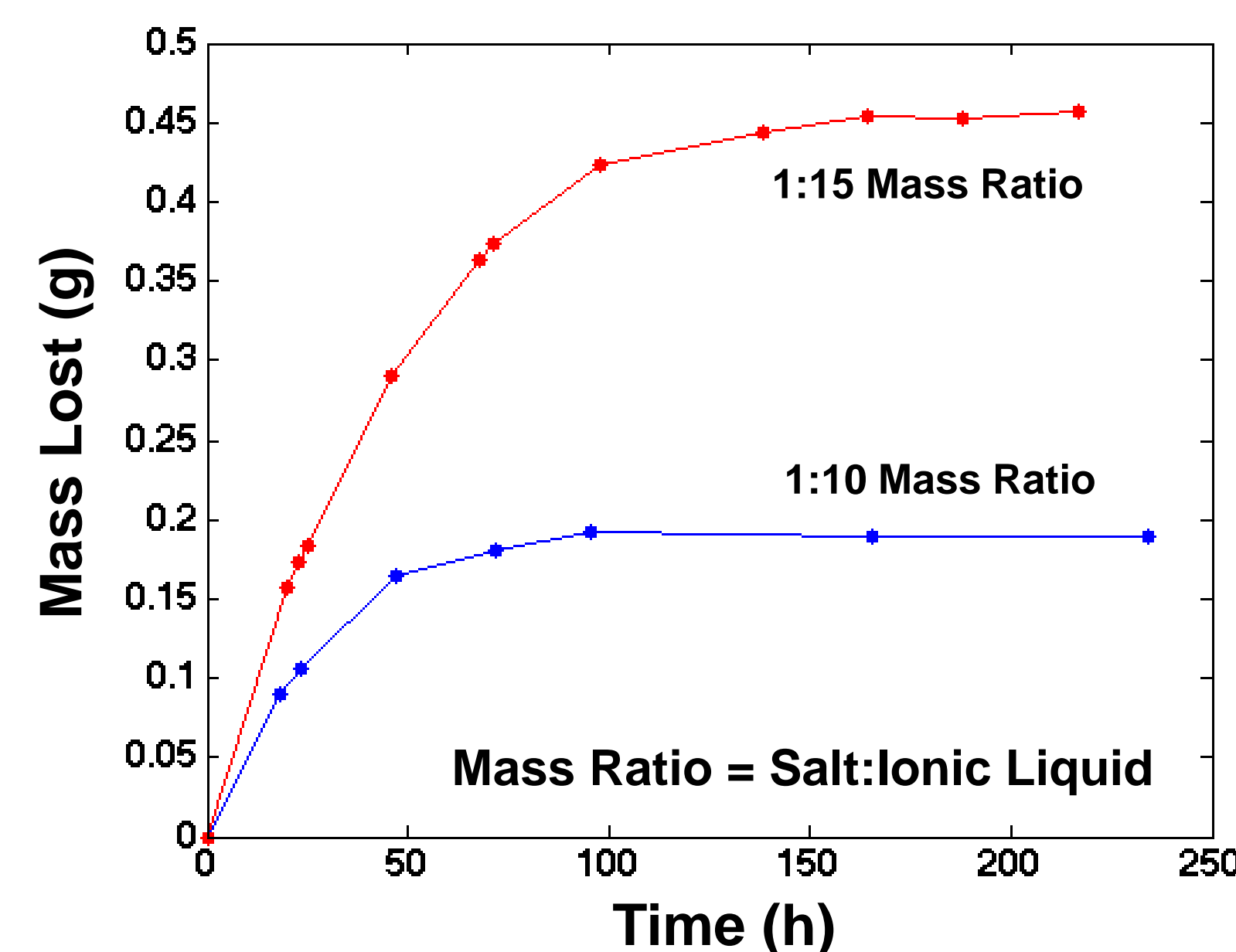
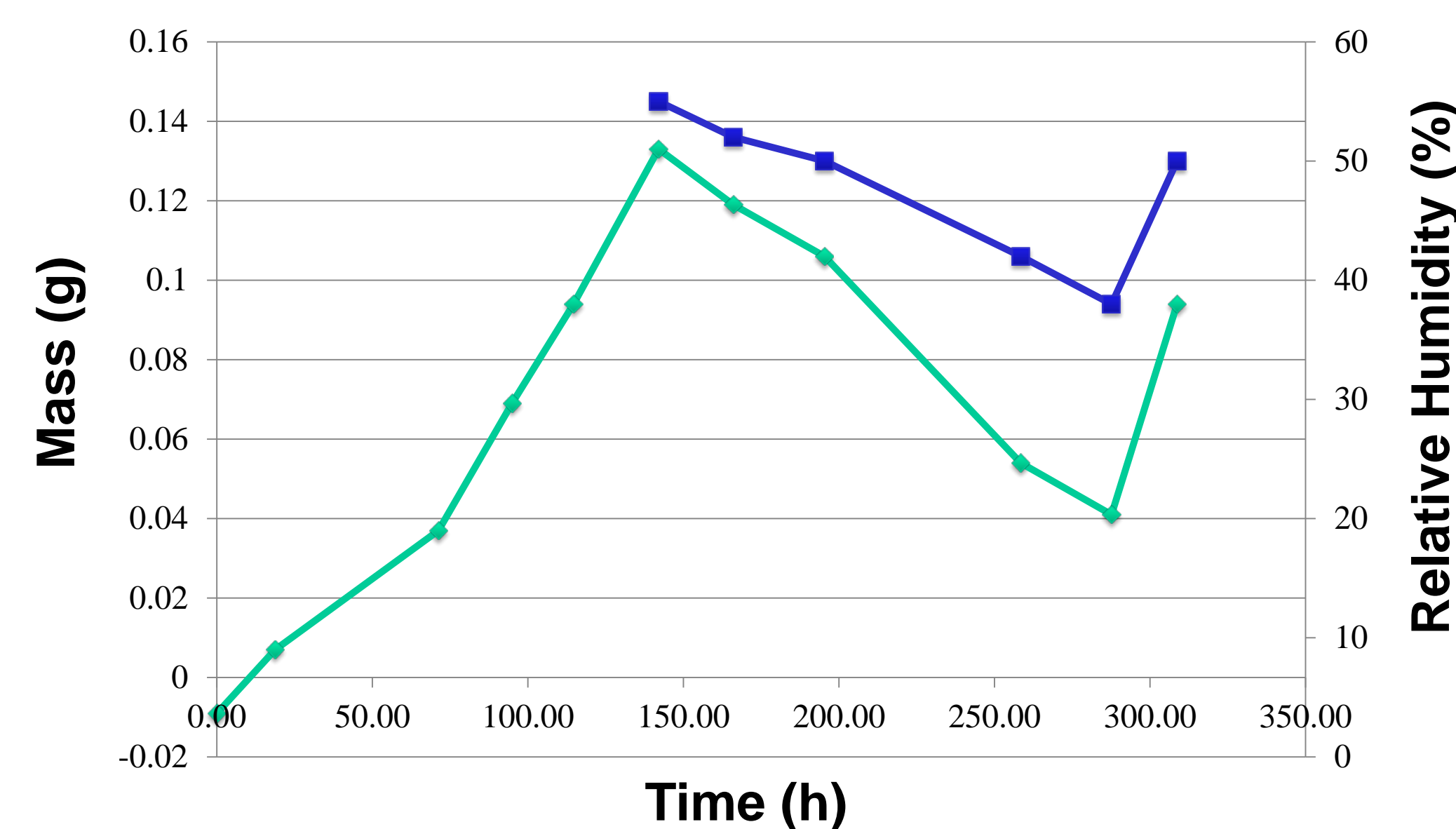
Ionic Liquid Electrolyte (BMIM Tf)



Integrate with flexographically printed battery components

- Solid
- Flexible
- Rechargeable
- Stable at high temperatures
 - (>100 °C and 3.5V)

Current Progress – Chemistry Optimization



Cells produced in dry argon

- Water is a major influencing factor in cell performance
- Materials are very sensitive to the relative humidity in the environment
- Water improves performance to a degree
- Salt concentration shown to affect water retention

Future Work

- Optimization of printability and mechanical properties
 - Film thickness uniformity
- Electrochemical optimization
 - Quantify effects from water
 - Correlate relationships between compositional elements
- Identify half reaction at cathode
- Quantify electrochemical influence of water on half reactions
- Full cell characterization and integration
 - Discharge limits
 - Thermal characterization