

## Gel polymer electrolytes based on polyacrylate copolymer for energy storage

Danil M. Lyskov<sup>1,2</sup>, Darya Yu. Voropayeva<sup>1</sup>

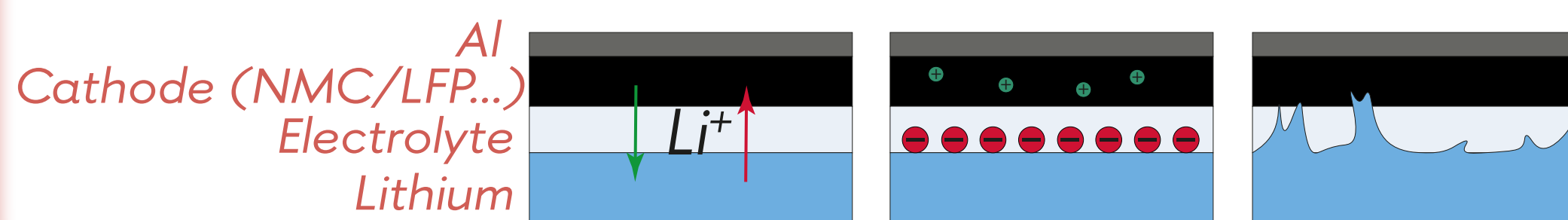
<sup>1</sup>Kurnakov Institute of General and Inorganic Chemistry, Russian Academy of Sciences, 119991 Leninsky avenue, 31, Moscow, Russian Federation

<sup>2</sup>HSE University (National Research University Higher School of Economics), 119048 Vavilova str., 8, Moscow, Russian Federation

### INTRODUCTION & AIM

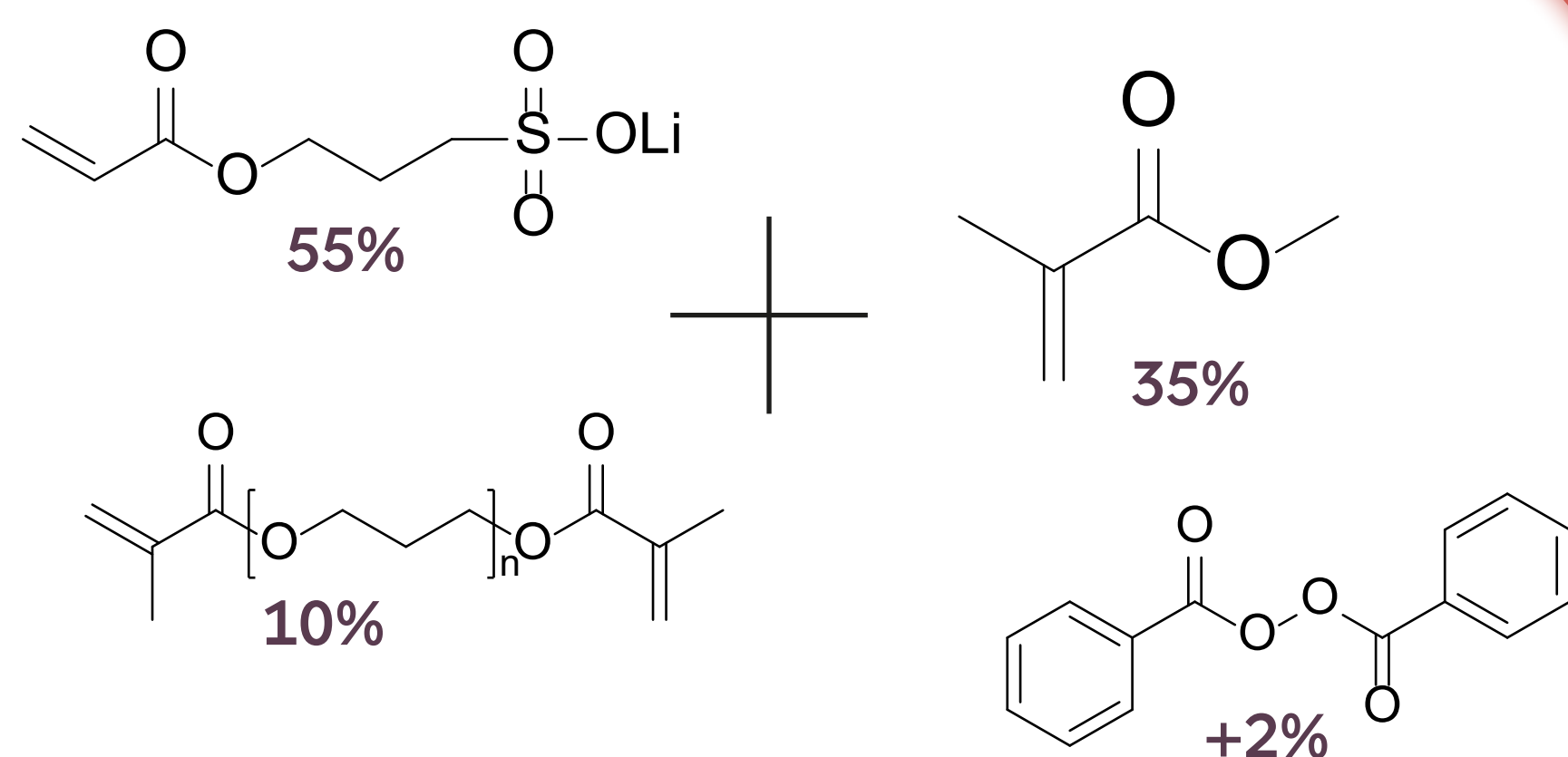
#### Lithium anode

- high theoretical capacity 3860 mAh/g
- low redox potential (-3.04 V)
- next generation of energy storage systems
- preferable to achieve energy density values up to 500 Wh/kg

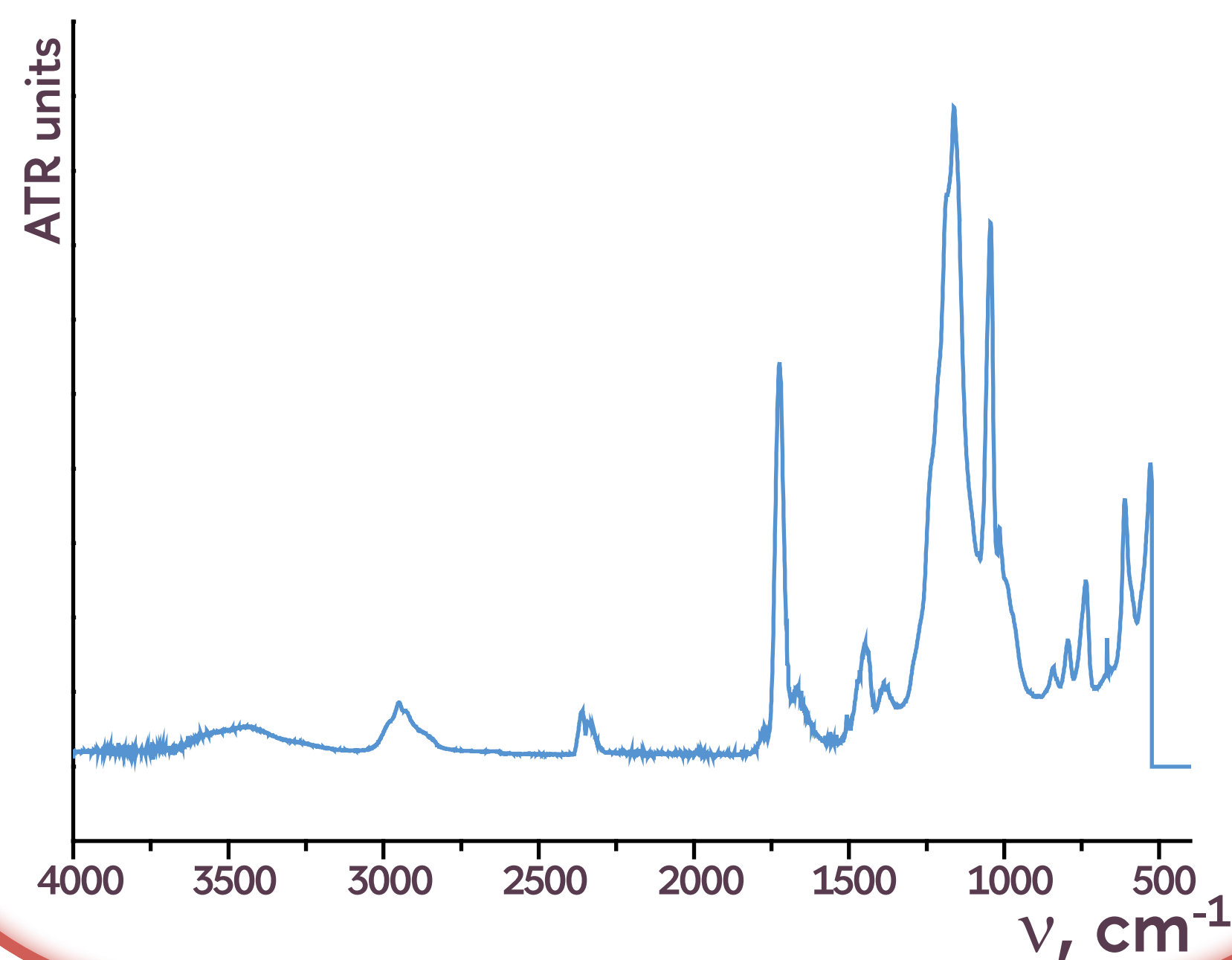


### DENDRYTE FORMATION PROBLEM

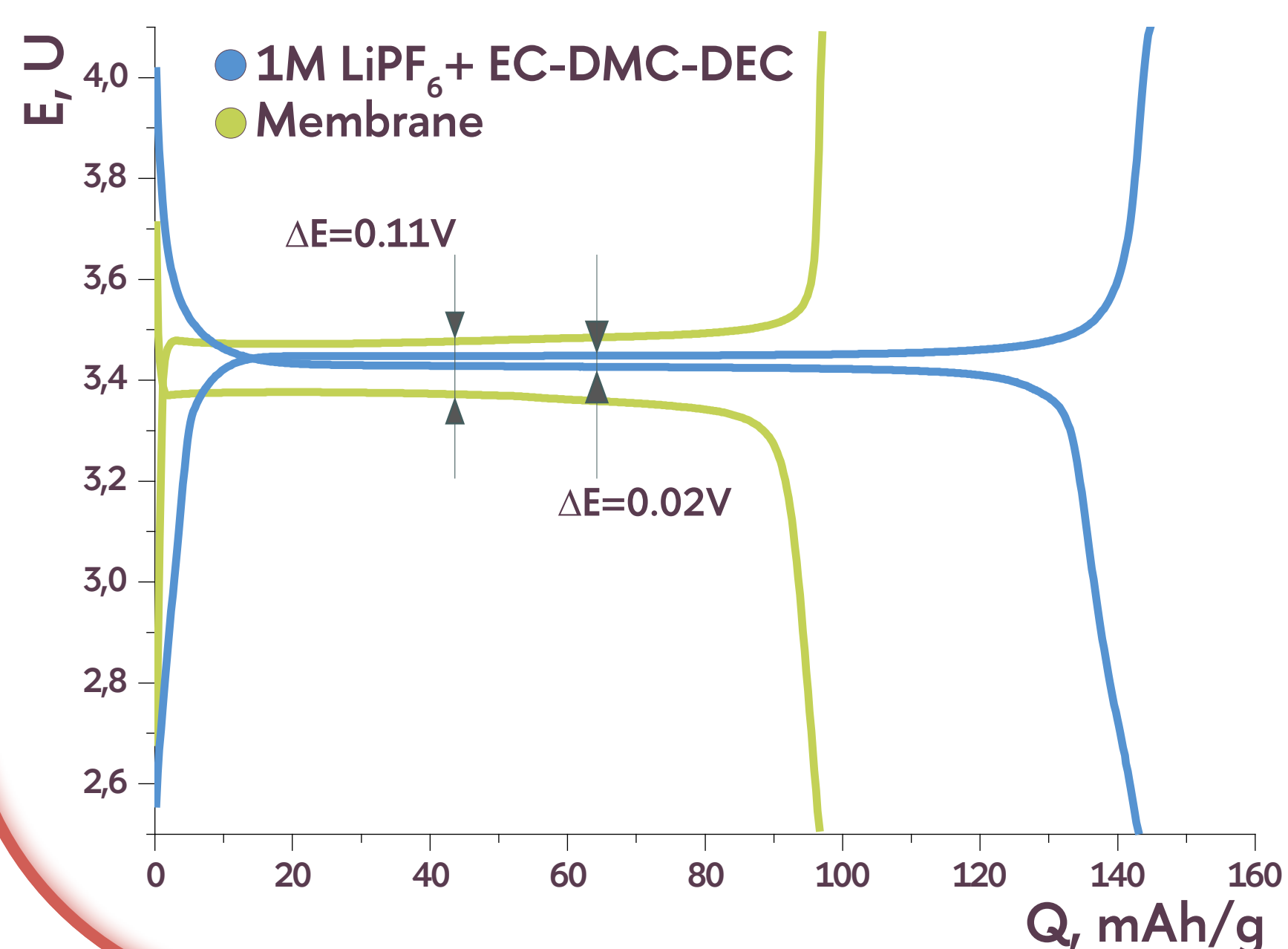
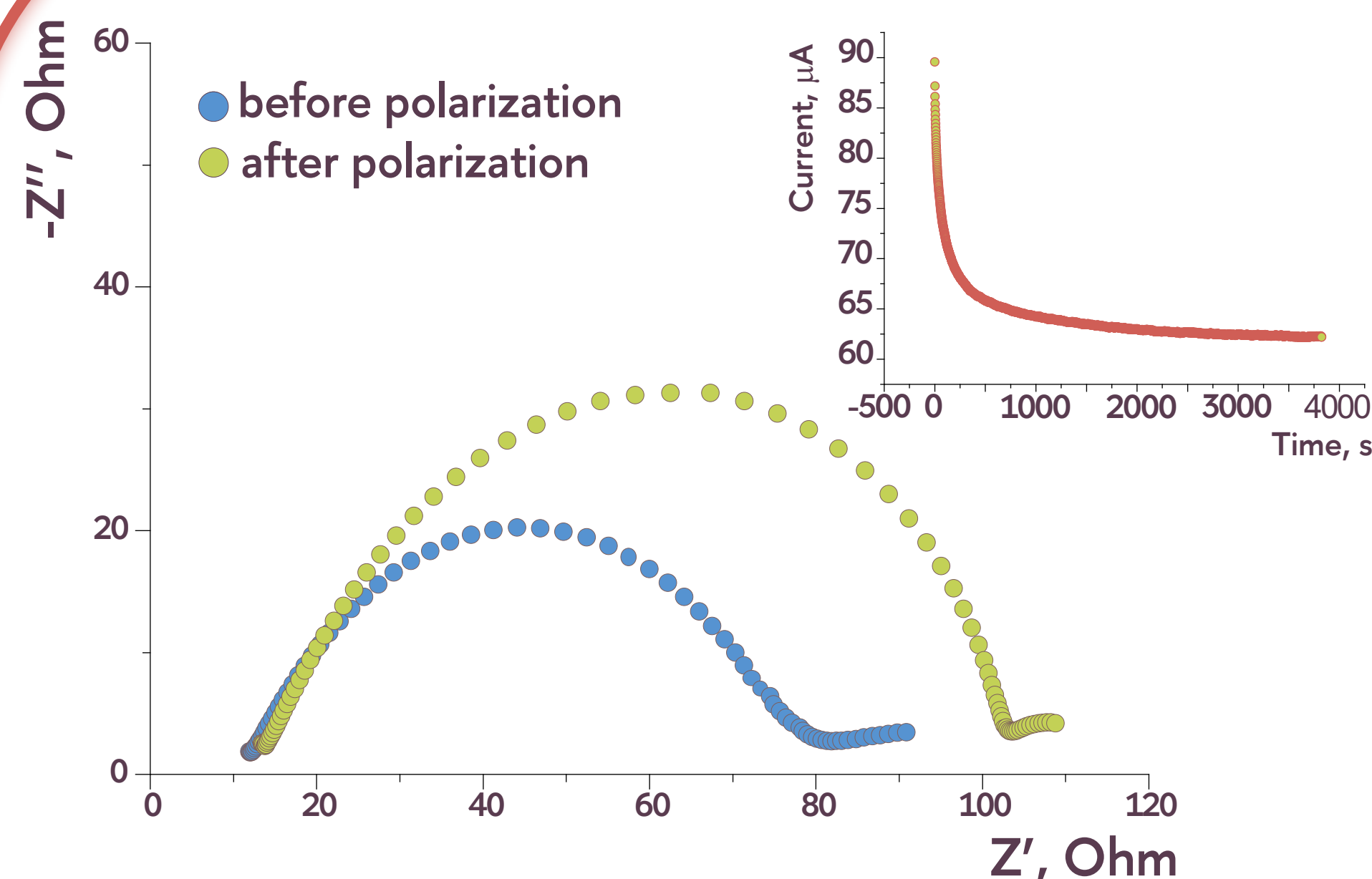
### METHOD



Polypropylene backbone, 90°C, vacuum, 1h



### ELECTROCHEMICAL PROPERTIES



### IONIC CONDUCTIVITY

$$\sigma = \frac{l}{R \cdot S}$$

$$\sigma = 0.58 \text{ mS/cm (RT)}$$

### CATION TRANSFERENCE NUMBER

$$t_+ = \frac{I_{ss}(\Delta V - I_0 R_0)}{I_0(\Delta V - I_{ss} R_f)}$$

$$t_+ = 0.58$$

