

Fluid Cell for Operando Indentation Platform

Track Code: 2018-ZHAO-68131

Categories:

- Mechanical Engineering
- Micro & Nanotechnologies

Keywords:

- Batteries
- Mechanical Engineering
- Micro & Nanotechnologies

Nanoindentation is a well-established technique to measure a variety of mechanical properties of materials at the local positions. Currently there are many challenges when it comes to performing this method. It requires the stability of the testing environment, control of sample sizes, and control of the geometry of the test which are all difficult variables to control. Operando Indentation requires a couple of extra steps which makes it even more difficult to perform. There is a need for a new technology that allows for easier performance of the operando indentation method.

Researchers at Purdue University have developed a new technology that allows the operando indentation to be performed easier. This new technology integrates a fluid cell. This fluid cell is inert to the liquid electrode which means the testing can be done in a liquid environment. This new technology also allows testing to be done in an open configuration. All of these things lets the testing be done during real time charging and discharging. This new technology opens the door for how operando indentation can be performed when testing on batteries.

Advantages:

- Measure behavior in real time charging and discharging
- Characterize materials in open configuration
- Characterize materials in liquid environment

Potential Applications:

- Operando indentation
- Batteries

People:

- Zhao, Kejie (Project leader)
- Scalco De Vasconcelos, Luize
- Xu, Rong

Intellectual Property:

Application Date: January 4, 2019

Type: Utility Patent

Country of Filing: United States

Patent Number: (None)

Issue Date: (None)

Application Date: January 4, 2018

Type: Provisional-Patent

Country of Filing: United States

Patent Number: (None)

Issue Date: (None)

Contact OTC:

Purdue Office of Technology Commercialization

1801 Newman Road

West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: otcip@prf.org