

## (19) United States

# (12) Patent Application Publication (10) Pub. No.: US 2023/0231258 A1

Boddakayala et al. (43) **Pub. Date:** 

Jul. 20, 2023

### (54) NOVEL AEROGEL SANDWICH STRUCTURE AS THERMAL BARRIERS FOR HIGH VOLTAGE BATTERY THERMAL MITIGATION APPLICATIONS

- (71) Applicant: Ford Global Technologies, LLC, Dearborn, MI (US)
- (72) Inventors: Bhaskara Rao Boddakayala, Troy, MI (US); Deborah Frances Mielewski, Ann Arbor, MI (US); Haibo Zhao,

Northville, MI (US); Alper Kiziltas, Sarikamis (TR)

(73) Assignee: Ford Global Technologies, LLC,

Dearborn, MI (US)

(21) Appl. No.: 17/576,324

(22) Filed: Jan. 14, 2022

#### **Publication Classification**

(51) Int. Cl. H01M 50/293 (2006.01)

(52) U.S. Cl. CPC ...... H01M 50/293 (2021.01)

#### (57)ABSTRACT

A battery system includes a thermoresistant spacer disposed between a first battery module and a second battery module. The thermoresistant spacer includes a substrate of aluminum, an aluminum alloy, an inorganic paper, and graphene, and the substrate laminated with a heat insulating material and has a flame retardant disposed over the laminated substrate.

