



US 20230231122A1

(19) **United States**
(12) **Patent Application Publication** (10) **Pub. No.: US 2023/0231122 A1**
MITSUI et al. (43) **Pub. Date: Jul. 20, 2023**

(54) **ELECTRODE LAYER AND ALL-SOLID STATE BATTERY**

Publication Classification

(71) Applicant: **TOYOTA JIDOSHA KABUSHIKI KAISHA**, Toyota-shi (JP)

(51) **Int. Cl.**
H01M 4/485 (2006.01)
H01M 4/38 (2006.01)
H01M 4/48 (2006.01)
H01M 4/587 (2006.01)
H01M 4/62 (2006.01)
H01M 10/0562 (2006.01)

(72) Inventors: **Akio MITSUI**, Anjo-shi (JP); **Yasunari SUGITA**, Osaka-shi (JP); **Kenji NAGAO**, Toyota-shi (JP); **Izuru SASAKI**, Kyoto-shi (JP); **Yasutaka TSUTSUI**, Osaka-shi (JP); **Takaaki TAMURA**, Mishima-gun (JP); **Hiroki KAMITAKE**, Osaka-shi (JP)

(52) **U.S. Cl.**
CPC *H01M 4/485* (2013.01); *H01M 4/48* (2013.01); *H01M 4/386* (2013.01); *H01M 4/587* (2013.01); *H01M 4/622* (2013.01); *H01M 4/623* (2013.01); *H01M 10/0562* (2013.01); *H01M 10/0525* (2013.01)

(73) Assignee: **TOYOTA JIDOSHA KABUSHIKI KAISHA**, Toyota-shi (JP)

(57) **ABSTRACT**

(21) Appl. No.: **17/976,456**

(22) Filed: **Oct. 28, 2022**

(30) **Foreign Application Priority Data**

Jan. 17, 2022 (JP) 2022-004965

There is provided an electrode layer for an all-solid state battery, which contains an electrode active material and a sulfide solid electrolyte, where the sulfide solid electrolyte has an average particle diameter of less than 1 μm and the electrode layer contains an imidazoline-based dispersion material.

