



US 20230231179A1

(19) **United States**

(12) **Patent Application Publication**  
**KIMURA**

(10) **Pub. No.: US 2023/0231179 A1**

(43) **Pub. Date: Jul. 20, 2023**

(54) **NEGATIVE ELECTRODE FOR  
RECHARGEABLE LITHIUM BATTERY AND  
RECHARGEABLE LITHIUM BATTERY  
INCLUDING SAME**

(71) Applicant: **SAMSUNG SDI CO., LTD.**, Yongin-si  
(KR)

(72) Inventor: **Fumiko KIMURA**, Yongin-si (KR)

(21) Appl. No.: **18/153,907**

(22) Filed: **Jan. 12, 2023**

(30) **Foreign Application Priority Data**

Jan. 14, 2022 (KR) ..... 10-2022-0006146

**Publication Classification**

(51) **Int. Cl.**

**H01M 10/0525** (2006.01)

**H01M 50/46** (2006.01)

(52) **U.S. Cl.**

**CPC** ..... **H01M 10/0525** (2013.01); **H01M 50/461**  
(2021.01); **H01M 2004/027** (2013.01)

(57)

**ABSTRACT**

A negative electrode for a rechargeable lithium and a rechargeable lithium battery, and the negative electrode includes a current collector and a negative active material layer positioned on the current collector, wherein the negative active material layer includes a plurality of holes at a hole density of about 90 pt/mm<sup>2</sup> or more.

1

