



US 20220377879A1

(19) **United States**(12) **Patent Application Publication**  
**HASHIMOTO et al.**(10) **Pub. No.: US 2022/0377879 A1**(43) **Pub. Date: Nov. 24, 2022**(54) **SAMPLE HOLDER AND  
SUPERCONDUCTING QUANTUM  
COMPUTER****Publication Classification**

(51) **Int. Cl.**  
*H05K 1/02* (2006.01)  
*H05K 1/11* (2006.01)  
*H05K 1/18* (2006.01)

(52) **U.S. Cl.**  
CPC ..... *H05K 1/0237* (2013.01); *H05K 1/115*  
(2013.01); *H05K 1/183* (2013.01)

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**Kohei Matsuura**, Tokyo (JP)(73) Assignee: **NEC Corporation**, Tokyo (JP)(21) Appl. No.: **17/746,172**(22) Filed: **May 17, 2022**(30) **Foreign Application Priority Data**

May 21, 2021 (JP) ..... 2021-085815

(57) **ABSTRACT**

A sample holder includes a base comprising a support structure and a printed circuit board (PCB) in contact with the base. The PCB includes: a dielectric; a front-surface ground (GND) formed on a front surface of the dielectric; a back-surface GND formed on a back surface of the dielectric; a through hole penetrating from the front-surface GND to the back-surface GND, the through hole in which a chip is disposed, and a conductor that electrically connects the front-surface GND and the back-surface GND on an end face of the through hole. At least a part of the base below the through hole has a cavity. The support structure that supports a surface of the chip and is electrically connected to the base. The support structure is disposed in the cavity.

