

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213787 A1 Peng et al.

Jun. 27, 2024 (43) **Pub. Date:**

(54) CHARGING PILE, POWER MODULE, AND METHOD FOR CONTROLLING THE SAME

- (71) Applicant: Sungrow Power Supply Co., Ltd., Hefei (CN)
- Inventors: Xuanzhe Peng, Hefei (CN); Zijiao Pan, Hefei (CN); Enzan Tan, Hefei (CN); Yilong Liang, Hefei (CN)
- (73) Assignee: Sungrow Power Supply Co., Ltd., Hefei (CN)
- Appl. No.: 18/351,457 (21)
- (22)Filed: Jul. 12, 2023
- (30)Foreign Application Priority Data

Dec. 22, 2022 (CN) 202211655927.X

Publication Classification

(51) Int. Cl. H02J 7/00

(2006.01)B60L 53/16 (2006.01)B60L 53/31 (2006.01) (52) U.S. Cl.

CPC H02J 7/0042 (2013.01); B60L 53/16 (2019.02); B60L 53/31 (2019.02); H02J 7/00032 (2020.01); B60L 2210/10 (2013.01); B60L 2210/30 (2013.01); H02J 2207/20 (2020.01); *H02J 2207/30* (2020.01)

(57)**ABSTRACT**

A charging pile, a power module, and a method for controlling the same. In response to receiving a signal of operation, samples of an input voltage of three relays corresponding to three phases, respectively, at an input of a power module are acquired to determine whether a line voltage between inputs of two of the three relays is within a predetermined voltage range. The two relays are closed to pre-charge a bus capacitor in a converting circuitry of the power module, in response to determining that the line voltage is within the predetermined voltage range. The predetermined voltage range comprises zero voltage, such that each relay can be closed when a voltage at its input is close to zero. An impulse current is decreased without help of an arc quenching device, thereby saving an internal space of the charging pile.

