US 20230231466A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2023/0231466 A1**

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

(54) **CASCADED POWER ELECTRONIC TRANSFORMER AND CONTROL METHOD THEREFOR**

(71) Applicant: **Sungrow Power Supply Co., Ltd.**, Hefei, Anhui (CN)

(72) Inventors: **Yue Dong**, Hefei (CN); **Jiacai Zhuang**, Hefei (CN); **Jun Xu**, Hefei (CN)

(73) Assignee: **Sungrow Power Supply Co., Ltd.**, Hefei, Anhui (CN)

(21) Appl. No.: **18/010,435**

(22) PCT Filed: **May 21, 2021**

(86) PCT No.: **PCT/CN2021/095148**

§ 371 (c)(1),
(2) Date: **Dec. 14, 2022**

(30) **Foreign Application Priority Data**

Sep. 30, 2020 (CN) 202011069564.2

Publication Classification

(51) **Int. Cl.**

H02M 1/00	(2006.01)
H02M 3/335	(2006.01)
H02M 1/08	(2006.01)

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

CPC ***H02M 1/007*** (2021.05); ***H02M 3/33576*** (2013.01); ***H02M 1/081*** (2013.01); ***H02M 1/0074*** (2021.05)

(57) **ABSTRACT**

A cascaded power electronic transformer and a method for controlling the same are provided. The method includes: calculating electrical angles θ_{i1} and θ_{kps} of an s^{th} transformer and a compensation electrical angle θ_j of a j^{th} transformer; adding the compensation electrical angle θ_j to the electrical angle θ_{kps} of the j^{th} transformer, to obtain a compensated electrical angle θ_{kps} of the j^{th} transformer; and calculating a square wave of a bridge arm voltage of each of the m primary converters and the r secondary converters of the s^{th} transformer based on the electrical angle θ_{i1} and the electrical angle θ_{kps} of the s^{th} transformer after compensation.