



US 20220386434A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0386434 A1**  
(43) **Pub. Date:** **Dec. 1, 2022**(54) **SYSTEMS AND METHODS FOR PROVIDING INTERACTIVE MODULAR LIGHTING**(71) Applicant: **NANOGRID LIMITED**, Sheung Wan (CN)(72) Inventors: **Nathan DYCK**, Toronto (CA); **Tomas RODINGER**, Vancouver (CA); **Aliakbar Juzer ESKI**, Mississauga (CA); **Lei ZHANG**, Toronto (CA); **Jennelle W. Y. WONG**, Aurora (CA)(21) Appl. No.: **17/884,291**(22) Filed: **Aug. 9, 2022****Related U.S. Application Data**

- (63) Continuation of application No. 17/298,390, filed on May 28, 2021, now Pat. No. 11,412,597, filed as application No. PCT/IB2019/060303 on Nov. 28, 2019.
- (60) Provisional application No. 62/772,508, filed on Nov. 28, 2018.

**Publication Classification**

- (51) **Int. Cl.**  
**H05B 47/105** (2006.01)  
**H05B 45/20** (2006.01)
- (52) **U.S. Cl.**  
**CPC** ..... **H05B 47/105** (2020.01); **H05B 45/20** (2020.01)

(57) **ABSTRACT**

Systems and methods for an interactive modular lighting system are described. The lighting systems enable users to dynamically build a luminaire through a modular joining of individual light-emitting units, however such that risk of electrical failure is automatically prevented through a dynamic computation of electrical circuit properties and dynamic configuration of components. Additionally, lighting systems with granular and configurable touch sensing are described, wherein a user's interaction with the lighting system can be coupled to actuation of properties of the lighting system or of properties of other devices in communication with the lighting system. Illustrative embodiments of applications of said lighting systems in smart home and gaming are provided.

