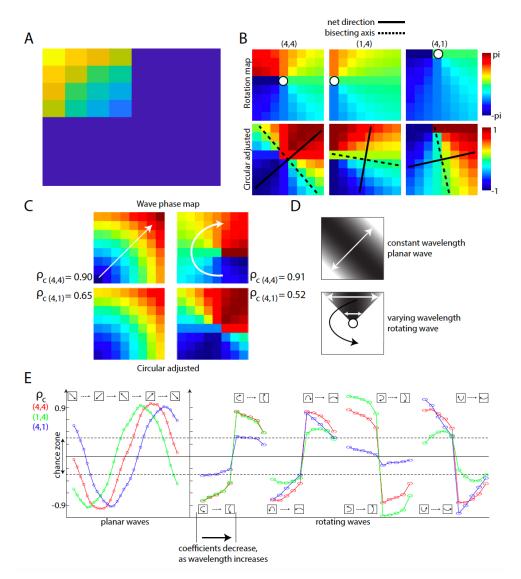
## **SUPPLEMENTARY FIGURE 1**



Supplemental Fig. 1: (A) Quadrant-based distance map used for traveling wave identification (one quadrant shown for diagonal wave detection). The distance maps would change accordingly for other wave types. (B) Rotation maps around three points on the array (top), adjusted for circular values (mean-centered and sine-transformed; bottom) with the net directions and bisecting axes marked. (C) Example waves (white arrows), with their phase maps (top) adjusted for circular values (bottom) shown with the corresponding coefficient values on the side. (D) Plot illustrating spatial wavelengths for planar and rotating waves. (E) Plot of three correlation coefficient values for different wave types. The region between the dashed horizontal lines denotes the "chance zone". It was ensured that at least one coefficient for each wave type remained outside this zone.