

Abstract Submitted  
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**Spinning hydraulic jump** HAMID ABDERRAHMANE, ASLAN KASIMOV, KAUST — We report an experimental observation of a new symmetry breaking of circular hydraulic jump into a self-organized structure that consists of a spinning polygonal jump and logarithmic-spiral waves of fluid elevation downstream. The waves are strikingly similar to spiral density waves in galaxies. The fluid flow exhibits counterparts of salient morphological features of galactic flows, in particular the outflow from the center, jets, circum-nuclear rings, gas inflows toward the galactic center, and vortices. The hydrodynamic instability revealed here may have a counterpart that plays a role in the formation and sustainability of spiral arms in galaxies.

Aslan Kasimov  
KAUST

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