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Numerical investigation of vorticity and bubble clustering in an air entraining hydraulic jump

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Highlights

- Computational fluid dynamics simulations of an air entraining hydraulic jump
- Shear layer instabilities drive free surface behavior and spatial bubble patterns
- Vortex roll-up responsible for free surface water ejections
- Two-dimensional bubble clustering assessment shows frequent clustering below roller
- Bubble cluster separation angle indicates clusters are remnant of bubble breakup

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