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Peer Review

# Review of: "Detecting Turbulent Patterns in Particulate Pipe Flow by Streak Angle Visualization"

**Xuan Zhang**[1]

1. University College London, University of London, United Kingdom

**General Comments: Minor Revision**

The manuscript presents an innovative streak visualization method designed to offer a simple and robust approach to identify transitional turbulent patterns in particulate pipe flows with neutrally buoyant particles. The technique employs a laser arrangement and a low-cost camera setup to capture particle-generated streaks within the fluid, enabling real-time observation of flow patterns. Validation of the proposed method was conducted through comparison with established techniques like Particle Image Velocimetry (PIV) and pressure drop measurements, confirming its accuracy and reliability. The manuscript is well-organized, and therefore, I would recommend minor comments to be implemented before the paper could be published.

1. Keywords: Keywords are missing. Please add some keywords for clarity.
2. Experimental setup: The Reynolds number is varied in the range [1120,2980], but the exact number is not given. Please provide some more details on the test conditions.
3. Conclusions: It is suggested to use numbers to summarize the key findings of the present investigation.
4. References: It is suggested that the following references are added to the manuscript:
5. Zhang, X. and Simons, R., 2019. Experimental investigation on the structure of turbulence in the bottom wave-current boundary layers. Coastal Engineering, 152, p.103511.
6. Zhang, X., Simons, R., Zheng, J. and Zhang, C., 2022. A review of the state of research on wave-current interaction in nearshore areas. Ocean Engineering, 243, p.110202.
7. Zhang, X., Simons, R., Zheng, J. and Zhang, C., 2024. Investigation on the turbulent structures in combined wave-current boundary layers. Ocean Engineering, 306, p.118073.



doi.org/10.32388/984HTJ

8. Zhang, X., Simons, R., Buldakov, E., MacIver, R., Zheng, J. and Zhang, C., 2022. Experimental investigation of time-invariant eddy viscosity in wave-current interaction. Experimental Thermal and Fluid Science, 135, p.110627.
9. Zhang, X., Simons, R. and Zheng, J., 2021. Experimental study of turbulent coherent structures using particle image velocimetry and hydrogen bubble visualisation techniques. Archive of Applied Mechanics, 91(3), pp.1113-1132.
10. Zhang, X., Zheng, J.H. and Zhang, C., 2023, May. Experimental study of Stokes drift in combined wave-current flows using Particle Image Velocimetry. In Journal of Physics: Conference Series (Vol. 2486, No. 1, p. 012010). IOP Publishing.

## Declarations

**Potential competing interests:** No potential competing interests to declare.