

## **Axisymmetric solitary waves on a ferrofluid jet**

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### **Abstract**

Travelling axisymmetric solitary waves on the surface of a cylindrical ferrofluid jet are investigated. An azimuthal magnetic field is generated by an electric current flowing along a stationary metal rod, which is mounted along the axis of the moving jet. A numerical method is used to compute fully nonlinear travelling solitary waves. Comparisons with weakly nonlinear theories such as KdV, and experiments are presented.