Flow-induced rotation of circular cylinder in Poiseuille flow of power-law fluids

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Highlights

- Anomalous rotation of pinned cylinder is found to be induced by flow inertia.
- Effect of power-law index *n* on the rotating velocity of cylinder is explored.
- Critical *Re* beyond which cylinder changes rotating direction is given.
- More stable rotating velocity of cylinder is discovered for different *Re* and *n*.