Flow of a power-law fluid across a rotating cylinder in a confinement

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Highlights

- Numerical investigations are done at equal rotational and inlet fluid Reynolds numbers.
- Non-monotonic effects of the asymmetry-ratio on the drag and lift coefficients and torque.
- Lubrication analysis performed for power-law fluid under severe confinement.
- Comparison of the numerical results with that of the lubrication analysis.
- Critical values of relevant parameters are computed for which flow transitions from steady to time-dependant flow.