

Abstract Submitted  
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**Stability of the Taylor-Couette flow under a radial thermoelectric body force**<sup>1</sup> HARUNORI YOSHIKAWA, INNOCENT MUTABAZI, OLIVIER CRUMEYROLLE, ANTOINE MEYER, Laboratoire Ondes et Milieux Complexes (UMR 6294 CNRS - Université du Havre) — A circular Couette flow developed between coaxial two infinite-length cylinders is considered in the case where only the inner cylinder is rotating. A radial temperature gradient and a radial electric field are applied to the flow, their coupling resulting in the dielectrophoretic body force density. This thermoelectric force can stabilize and destabilize the flow, depending on the heating direction. The critical Taylor number, wavenumber and frequency are determined for a wide range of control parameters. The mechanism behind the instability will be discussed.

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