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Title: Transverse Magnetic Field Driven Modification in Unsteady Peristaltic Transport with Electrical Double Layer Effects

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**Highlights:**

- Peristaltic transport of electrically-conducting fluids through a microchannel is presented.
- Increasing electro-osmotic parameter (i.e. smaller Debye length), maximum time-averaged flow rate is enhanced.
- Increasing the electrical field parameter (i.e. maximum electro-osmotic velocity), maximum time-averaged flow rate is significantly elevated.
- Pressure differences are markedly decreased with greater axial distance.
- This model is applicable in electromagnetic peristaltic micro-pumps in medical engineering and also “smart” fluid pumping systems in nuclear and aerospace industries.

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