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The effect of the torsion on the axial flow in helical pipes
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— The effect of the torsion on the flow in helical pipes remains difficult to predict and slightly controversial. Also in the simple case of a circular cross section and laminar flow it is difficult to have a clear idea of the influence of the torsion. In particular as regards the axial flow we register a second order effect of the torsion on the flow rate but a strong effect on the asymmetry of the velocity profile produced by the curvature. In the presentation a new bulk indicator of the rotation of the axial flow induced by the torsion is defined. This indicator is applied to the accurate calculations of Gammack and Hydon, (JFM 433, 357-382, (2001)), and an estimate of the bulk rotation angle of the axial flow is produced in the limiting case of low curvature and high values of the torsion. In this case we register a strong and direct dependence of the bulk rotation of the axial flow with the torsion number.

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