

Abstract Submitted  
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**Effect of Rough Moving Boundaries on Plane Poiseuille Flow**

DAVID COTRELL, B.J. ALDER, LLNL — We report computations of unsteady solutions of the Navier-Stokes equations for flow between two rough plates driven by a stream-wise pressure gradient and time-periodic motion of the boundaries. We consider the flow as a function of the stream-wise pressure gradient for several values of the wall amplitude and computational aspect ratio, and investigate a large range of boundary modulation frequencies. Base flow calculations show that, as expected, for a constant stream-wise pressure gradient and no motion of the boundaries, the flow rate decreases with increasing wall roughness amplitude. On the other hand, if the wall modulation frequency is high enough the flow rate can ultimately surpass the smooth walled case for. This work was performed under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract No. DE-AC52-07NA27344.

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