

Abstract Submitted  
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**Prediction and Manipulation of Skin Friction in High-Reynolds Number Flows**<sup>1</sup> YULIA PEET, Northwestern University, PIERRE SAGAUT, University of Pierre and Marie Curie - Paris 6 — Skin friction, which depends on the local shear rate, becomes difficult to predict when Reynolds number of the flow exceeds its critical value, and the flow becomes disorderly. We have developed an analytical approach which relates skin friction coefficient to statistical information in the flow above the surface in a general case of high-Reynolds numbers and complex wall shapes. Current approach allows separating the contribution of different dynamical effects into skin friction, thus providing the basis for understanding how skin friction can be manipulated by passive and active flow control methods. In the current presentation, we show the effects of organized surface nonuniformities on skin friction and compare the results of theoretical analysis with numerical simulations.

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Yulia Peet  
Northwestern University

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