

Investigation of channels with perforated wall for external boundary layer control

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Abstract

In recent years liquid-infused surfaces (LISs) have become a heavily studied topic due to their broad application range such as self-cleaning, pressure stability and ultra-slippery properties in channel flow. LIS relies on a physiochemical surface coverage with a low viscosity fluid creating an intermediate layer between the flowing fluid and a channel's surface. Depending on the properties of the infused liquid the LIS is characterized by an effective slip length as the frictional drag that slows down the fluid flow at microscales is reduced. During flow shear forces may cause the partial or complete removal of the infusion liquid layer canceling the desired drag reduction effect. This effect could not be avoided so far due to a missing external access to the infusion layer on the channel's surface. The main purpose of this study is the development of a technique to achieve active control of the infusion layer.

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Biography

Ellen Bold received her diploma in 2021 from the Technical University of Kaiserslautern. Since 2021, she is PhD student in the working group "Physics and Technology of

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