I am submitting another one as first author to focus session 39.1 "the fluid dynamics of gross", but that one is for fun.

Abstract Submitted
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Any material becomes superhydrophobic, if you can make it rough enough at multiple scales.[1] DANIEL ATTINGER, CHRISTOPHE FRANKIEWICZ, Iowa State University — Superhydrophobic surfaces with the self-cleaning behavior of lotus leaves are sought for drag reduction and phase change heat transfer applications. These superrepellent surfaces have traditionally been fabricated by random or deterministic texturing of a hydrophobic material, either as the base material or as a coating on technically relevant base materials. Recently, superrepellent surfaces have also been made from hydrophilic materials, by deterministic texturing using photolithography, without low-surface energy coating. Here, we show that hydrophilic materials can also be made superrepellent [1] to water by chemical texturing, a stochastic rather than deterministic process. These metallic surfaces [2] are the first analog of lotus leaves, in terms of wettability, texture and repellency. A mechanistic model is also proposed to describe the influence of multiple scales of roughness on wettability and repellency. These superrepellent surfaces made of hydrophilic materials are also able to switch between a metastable Cassie-Baxter state and a hydrophilic wetting state. Related opportunities for controlling phase change heat transfer will be discussed. [1] S. Herminghaus, "Roughness-induced non-wetting," *EPL (Europhysics Letters),* vol. 52, p. 165, 2000; [2] C. Frankiewicz and D. Attinger, "Texture and wettability of metallic lotus leaves," Nanoscale, DOI: 10.1039/c5nr04098a.

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