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Substrate hydrophobicity and meandering PETER VOROBIEFF, The University of New Mexico, BJORN BIRNIR, University of California - Santa Barbara, KEITH MERTENS, VAKHTANG PUTKARADZE, Colorado State University — We present a study of the effect of surface properties on the meandering of a rivulet flowing down a non-eroding inclined plane. In this plane, we consider the behavior of meandering amplitude of the rivulet $h(x,t)$ for a variety of substrates, from partially wetting to hydrophobic, and present our results in terms of Fourier spectra of h and in terms of the dimensionless growth rate of averaged absolute values of h vs. downstream distance x. While the spectra have certain similarities in their scaling behavior for all the surfaces we studied, the dimensionless amplitude growth rate appears to depend rather strongly on the static contact angle characterizing the substrate.

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