

Abstract Submitted  
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**Controlling**

**roughening processes in the stochastic Kuramoto-Sivashinsky equation**

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University — We present a novel control methodology to control the roughening  
processes of semilinear parabolic stochastic partial differential equations in one di-  
mension, which we exemplify with the stochastic Kuramoto-Sivashinsky equation.  
The original equation is split into a linear stochastic and a nonlinear deterministic  
equation so that we can apply linear feedback control methods. Our control strategy  
is then based on two steps: first, stabilize the zero solution of the deterministic part  
and, second, control the roughness of the stochastic linear equation. We consider  
both periodic controls and point actuated ones, observing in all cases that the second  
moment of the solution evolves in time according to a power-law until it saturates  
at the desired controlled value.

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