

Abstract Submitted
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Feedback Control of Pattern Formation LIAM STANTON,
ALEXANDER GOLOVIN, Northwestern University — Global feedback control of spatially-regular patterns described by the Swift-Hohenberg (SH) equation is studied. Two cases are considered: (i) the effect of control on the competition between roll and hexagonal patterns; (ii) the suppression of sub-critical instability by feedback control. In case (i), it is shown that control can change the stability boundaries of hexagons and rolls. Particularly, for certain values of the control parameter, both hexagons and rolls are unstable, and one observes non-stationary patterns with defects. In case (ii), the feedback control suppresses the unbounded solutions of a sub-critical SH equation and leads to the formation of spatially-localized patterns.

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