1146-35-501   **Qiliang Wu*** (`wuq@ohio.edu`), Department of Mathematics, Ohio University, Morton Hall 321, 1 Ohio University, Athens, OH 45701, and **Arnd Scheel**. *The Effect of Impurities on Stripes in Multi-Dimensional Extended Domains.*

Periodic patterns are ubiquitous in nature and their manifestation is generically deformed and accompanied with defects, due to external forcing and/or impurity of the background. We study the effect of impurity on emerging periodic patterns in the 2D/3D Swift-Hohenberg equation. More specifically, we investigate spectrally stable periodic patterns with their corresponding linearized operators admitting essential spectrum continue up to the origin. These linearized operators are shown to be Fredholm on Kontradiev spaces–a special family of algebraically weighted Sobolev spaces. Exploiting a refined decaying structure of the linear flow and an implicit-function-theorem argument, we prove that the presence of localized impurity gives rise to deformed periodic patterns accommodating near-field deformation and far-field modulation. (Received January 29, 2019)