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A variational problem in a multi-valued function space

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Abstract

Point defects are very common phenomena in pattern formation systems. In this talk, I will derive a variational model of pattern formation system from the classical Rayleigh-Bernard convection. The phase of roll patterns motivate us to study the variational problem in a multi-valued function space. In this setting, point defects are branch points. The multi-valued function space of Almgren will be introduced. I will also show the existence of the minimizer in the multi-valued function space.