INCOMMENSURATE PERIODIC CONFIGURATIONS IN SYSTEMS WITH REAL ORDER PAREMETER

V. Dananić

Faculty of Technology

Pierrotieva 6, 10000 Zagreb, Croatia

A. Bjeliš

Department of Theoretical Physics, Faculty of Sciences,

POB 162, 10000 Zagreb, Croatia

E. Coffou and M. Rogina

Department of Mathematics, Faculty of Sciences,

POB 635, 10000 Zagreb, Croatia

PACS numbers: 64.70.Rh ; 64.60.My

Abstract

Considering the standard Landau model we demonstrate that the phase diagrams for the lock-in to the uniform and dimerized ordering contain a novel class of periodic configurations. They are formed as sequences of local commensurate and incommensurate modulation. The simplest representatives are calculated numerically. Being stable in narrow ranges of control parameter, these configurations might be the source of global hysteresis and memory effects frequently seen in particular systems.