

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Signatures of the Berezinskii-Kosterlitz-Thouless transition on the zeros of the canonical partition function for the 2D XY-model<sup>1</sup>**

JULIO ROCHA, LUCAS MOL, BISMARCK COSTA, Universidade Federal de Minas Gerais — In this work we show that the canonical partition function zeros, the Fisher zeros, can be used to uniquely characterize a transition as being in the Berezinskii-Kosterlitz-Thouless (BKT) class of universality. By studying the zeros map for the 2D XY model we found that its internal border coalesces into the real positive axis in a finite region corresponding to temperatures smaller than the BKT transition temperature. This behavior is consistent with the predicted existence of a line of critical points below the transition temperature, allowing one to distinguish the BKT class of universality from other ones.

<sup>1</sup>This work was partially supported by CNPq and Fapemig, Brazilian Agencies.

Julio Rocha  
Universidade Federal de Minas Gerais

Date submitted: 13 Nov 2014

Electronic form version 1.4