
Critical behaviour on complex networks: inhomogeneous mean-field vs Lee-Yang-Fisher formalism

Mariana Krasnytska^{*†1,2}, Bertrand Berche^{2,3}, Yuriy Holovatch^{1,2}, and Ralph Kenna^{2,4}

¹Institute for Condensed Matter Physics, National Acad. Sci. of Ukraine, UA-79011 Lviv, Ukraine –
Ukraine

² \mathbb{L}^4 Collaboration & Doctoral College for the Statistical Physics of Complex Systems,
Leipzig-Lorraine-Lviv-Coventry, D-04009 Leipzig, Germany – Germany

³Institut Jean Lamour, CNRS/UMR 7198, Groupe de Physique Statistique, Université de Lorraine, BP
70239, F-54506 Vandœuvre-lès-Nancy Cedex, France – Institut Jean Lamour, CNRS – France

⁴Applied Mathematics Research Centre, Coventry University, Coventry CV1 5FB, United Kingdom –
United Kingdom

Abstract

We study the critical behavior of spin models on a scale-free network with a power-law node-degree probability distribution decay $P(k) \sim k^{-\lambda}$, $k > 1$ and on a complete graph. To this end, we apply traditional inhomogeneous

*Speaker

†Corresponding author: kras_mariana@icmp.lviv.ua