

Erratum to: General Non-Existence Theorem for Phase Transitions in One-Dimensional Systems with Short Range Interactions, and Physical Examples of Such Transitions

José A. Cuesta · Angel Sánchez

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We have found an erratum in our non-existence theorem (Theorem 5): There is one hypothesis missing in the text (analyticity) which is needed to apply Theorem 4 in the proof. In addition, we have noticed that, as formulated in the paper, the Theorem is too restrictive, because the positivity hypothesis is needed only on \mathbb{R}^+ .

Taking these two issues into account, Theorem 5 should read as follows (changes in straight font):

Theorem 5 (Nonexistence of Phase Transitions) *Let $\mathbf{T}(\beta)$ be a compact, irreducible linear operator on the Banach lattice E for all $\beta \in \Omega$, a complex neighborhood of \mathbb{R}^+ . Assume further that $\mathbf{T}(\beta)$ is analytic in Ω either in the strong or the weak convergence sense, and positive on \mathbb{R}^+ . Let $\lambda_{\max}(\beta)$ and $\mathbf{P}_{\max}(\beta)$ be, respectively, the maximum eigenvalue of $\mathbf{T}(\beta)$ and the projector on its corresponding eigenspace. Let $\varphi(\cdot)$ be a real, linear functional on the space of bounded, linear operators on E such that $\varphi(\mathbf{P}_{\max}(\beta)) \neq 0$. Then*

$$\lim_{N \rightarrow \infty} \frac{1}{N} \ln \mathcal{Z}_N = -\ln \lambda_{\max}(\beta)$$

is an analytic function on \mathbb{R}^+ , where \mathcal{Z}_N is given by equation (25).

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J.A. Cuesta (✉) · A. Sánchez
Grupo Interdisciplinar de Sistemas Complejos (GISC) and Departamento de Matemáticas, Universidad Carlos III de Madrid, Avenida de la Universidad 30, 28911 Leganés, Madrid, Spain
e-mail: cuesta@math.uc3m.es

A. Sánchez
e-mail: anxo@math.uc3m.es

The proof holds as is in the paper, with a minor modification on the last paragraph, which should read (changes in italics):

Now, $\mathbf{T}(\beta)$ fulfills the hypothesis of Theorem 3, thus *for all $\beta \in \mathbb{R}^+$, $\lambda_{\max}(\beta) > 0$ has multiplicity one and is isolated. By continuity, so it is in a complex neighborhood of \mathbb{R}^+ .* Then taking $\Sigma = \{\lambda_{\max}(\beta)\}$ in Theorem 4 it follows that this eigenvalue is an analytic function in $\beta > 0$ and the proof is complete.

All the conclusions and discussions of the paper are unaffected by these technical points, needed only for mathematical accuracy.