

# Dyson Model: An example of the non- $g$ -measure Gibbs measure

Eric Ossami Endo<sup>1</sup>, Rodrigo Bissacot<sup>2</sup>, Aernout C. D. van Enter<sup>3</sup>, Arnaud Le Ny<sup>4</sup>

<sup>1</sup> Universidade de São Paulo, Brazil

University of Groningen, the Netherlands

<sup>2</sup> Universidade de São Paulo, Brazil

<sup>3</sup> University of Groningen, the Netherlands

<sup>4</sup> LAMA UMR CNRS 8050 – Université Paris-Est (UPEC), Créteil, France

Dyson Model, a long-range Ising model, with ferromagnetic and polynomially decaying interactions of the form  $\frac{1}{|x-y|^\alpha}$  with  $1 < \alpha < 2$ , has been studied for a considerable time. One recent result is the existence of the phase-separation in a low-temperature [2]. We show in [3] that this phase-separation property give us the occurrence of the entropic repulsion, concluding that the Gibbs measures of the Dyson model when  $\alpha$  is close to 2 (but different) and the temperature is low enough are not  $g$ -measure. This result answers a question raised in [1].

## References

- [1] R. FERNÁNDEZ, G. MAILLARD , *Chains with Complete Connections and One-Dimensional Gibbs Measures* , Electron. J. Prob. **9**:145–176, 2004.
- [2] M. CASSANDRO, I. MEROLA, P. PICCO, U. ROZIKOV . *One-Dimensional Ising Models with Long Range Interactions: Cluster Expansion, Phase-Separating Point* , Comm. Math. Phys. **327**:951-991, 2014.
- [3] R. BISSACOT, E.O. ENDO, A.C.D. VAN ENTER, A. LE NY. *Entropic Repulsion and lack of the  $g$ -measure property for Dyson models.* , arXiv:1705.03156