



Journals ▼

Books

Publishing  
Support

Login ▼

PAPER

# Entropy production of the contact model

Tânia Tomé and Mário J de Oliveira\*

Published 9 September 2024 • © 2024 IOP Publishing Ltd and SISSA Medialab srl. All rights, including for text and data mining, AI training, and similar technologies, are reserved.

Journal of Statistical Mechanics: Theory and Experiment, Volume 2024,  
September 2024

**Citation** Tânia Tomé and Mário J de Oliveira *J. Stat. Mech.* (2024)  
093202

**DOI** 10.1088/1742-5468/ad72db

1. Received 17 May 2024
2. Revised 2 August 2024
3. Accepted 20 August 2024
4. Published 9 September 2024



[Buy this article in print](#)

 Journal RSS

 Sign up for new issue notifications

## Abstract

We propose an expression for the production of entropy for a system described by a stochastic dynamics which is appropriate for the case where the reverse transition rate vanishes but the forward transition is nonzero. The expression is positive definite and based on the inequality  $x \ln x - (x - 1) \geq 0$ . The corresponding entropy flux is linear in the probability distribution allowing its calculation as an average. The expression is applied to the one-dimensional contact process at the stationary state. We found that the rate of entropy production per site is finite with a singularity at the critical point with diverging slope.

Export citation and abstract

BibTeX

RIS

[← Previous article in issue](#)

[Next article in issue →](#)

Access this article

The computer you are using is not registered by an institution with a subscription to this article. Please choose one of the options below.

## Login



[IOPscience login](#)

## Purchase from

[Article Galaxy](#)

[CCC RightFind](#)

Purchase this article from our trusted document delivery partners.

## Rent from



This article is available from [DeepDyve](#).

## Make a recommendation

To gain access to this content, please complete the [Recommendation Form](#) and we will follow up with your librarian or Institution on your behalf.

For corporate researchers we can also follow up directly with your R&D manager, or the information management contact at your company. Institutional subscribers have access to the current volume, plus a 10-year back file (where available).

---

## You may also like

---

### JOURNAL ARTICLES

---

Expression and Clinical Significance of Computer-aided HIC-1 in Colon Cancer

---

Differential gene detection incorporating common expression patterns

---

ARL-IL CNN for Automatic Facial Expression Recognition of Infants under 24 Months of Age

---

Computational Simulation on Facial Expressions and Experimental Tensile Strength for Silicone Rubber as Artificial Skin

---

Stability analysis of a *Pichia pastoris* recombinant clone expressing human insulin precursor

---

Effects of Light and Phytohormone Treatments on the Expression of  $\zeta$ -Carotene Desaturase Gene (BoaZDS) in Chinese Kale

## IOPSCIENCE

Journals

Books

IOP Conference  
Series

About IOPscience

Contact Us

Developing  
countries access

IOP Publishing  
open access policy

Accessibility

## IOP PUBLISHING

Copyright 2024  
IOP Publishing

Terms and  
Conditions

Disclaimer

Privacy and  
Cookie Policy

Text and Data  
mining policy

## PUBLISHING SUPPORT

Authors

Reviewers

Conference  
Organisers

**IOP**

