Qeios

Peer Review

Review of: "Aspects of a Randomly Growing Cluster in ℝ^2, d≥2"

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The paper studies a particular model for a set of random points. The mathematical arguments presented in the paper are rigorous and well-founded, though some details require clarification (see Comments below). Additionally, the authors should provide a clearer motivation for why this particular model is chosen. Do the authors have a specific application in mind for their model?

*** Comments:

1. The notation N(0,sigma) is ambiguous, as it is unclear whether sigma represents the variance or the standard deviation. Later, it becomes evident that it denotes the standard deviation. However, it is more common for the second argument in N(.,.) to represent the variance, typically written as sigma^2. Therefore, some clarification is needed.

2. In the definition of rho(X) on p. 1, use sup instead of max because the maximum of an infinite set is not necessarily attained.

3. The symbol pi(i) on the first line of Chapter 2 is not defined.

4. When referring to [2] on p. 2, Chapter 14.2 should be rather Chapter 15.2 in the online version of the book.

5. The symbol [k_1,k_2] on p. 3 is not defined.

6. The symbol dist(i) on p. 3 is not explained.

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7. At the beginning of Subsection 3.2, the first bound needs some clarification. I would expect |N(0,i^{-alpha})-N(0,j^{-alpha})| instead of |N(0,m^{-alpha})-N(0,m^{-alpha})|.
Moreover, the next equality is not correct as N(0,m^{-alpha})-N(0,m^{-alpha}) is N(0,sqrt(2)*m^{-alpha}) if the second argument of N(.,.) stands for the standard deviation.

8. In classical point process theory, a point process has finitely many points in every bounded set. In this sense, the proposed model is not a point process, as stated in the first line of the Summary.

*** Minor comments (formulas):
Eq. (1): It would be better to use lambda_m(i) rather than lambda(i) to stress the dependence on m.

Eq. (3): The term d^{1/2} is missing on the right-hand side.

*** Minor comments (language):
Introduction, l. 11: a the set -> the set

p. 2, l. 4: is grows -> grows

Chapter 2, l. 2: to to -> to

p. 5, 3 times: Eggenburger -> Eggenberger

*** Minor comments (typography):
Abstract, l. 2: Do not write a comma and period after an ellipsis (...).

Introduction, l. 2: Do not write a comma after an ellipsis (...).

Introduction, l. 11: Do not write a period after an ellipsis (...).

Theorem 2: Use a slanted version of L_n instead of a crossed one.

Section 3.2.1, l. 4: nrounds -> n rounds

*** Minor comments (references):

[1]: journal volume (31) and pages are missing

[3]: 200 -> 2000

[5]: It is not necessary to capitalize the first letters of the paper's title.

Declarations

Potential competing interests: No potential competing interests to declare.