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Moderate deviations for stochastic tidal dynamics equations with multiplicative Gaussian noise

A. Haseena ✉, M. Suvinthra, Manil T. Mohan & K. Balachandran

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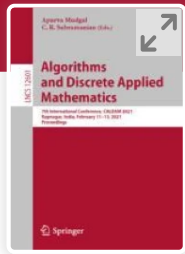
Abstract

In this article, we consider the stochastic tidal dynamics equations perturbed by multiplicative Gaussian noise and discuss some asymptotic

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↳ CALDAM 2021: **Algorithms and Discrete Applied Mathematics** pp 234–246

Lexicographic Product of Digraphs and Related Boundary-Type Sets

Manoj Changat, Prasanth G. Narasimha-Shenoi & Mary Shalet Thottungal Joseph ✉

Conference paper | First Online: 28 January 2021

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Abstract

Let $D = (V, E)$ be a digraph and $u, v \in V(D)$. The metric, *maximum distance* is defined by

$$md(u, v) = \max\{ \overrightarrow{d}(u, v), \overrightarrow{d}(v, u)\}$$

where $\overrightarrow{d}(u, v)$ denote the length of a shortest directed $u - v$ path in D. The relationship between the boundary-type

sets of the lexicographic product of two digraphs and its factor graphs have been studied in this article.

Keywords

Maximum distance

Boundary-type sets

Strongly connected digraph

Lexicographic product   DDLE digraph

Subject Classification (2020):

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Boundary-type sets of strong product of directed graphs

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Abstract

Let $D = (V, E)$ be a strongly connected digraph and let u and v be two vertices in D. The maximum distance $md(u, v)$ is defined as $md(u, v) = \max\{d^{\rightarrow}(u, v), d^{\rightarrow}(v, u)\}$, where $d^{\rightarrow}(u, v)$ denotes the length of a shortest directed u-v path in D. This is a metric. The boundary, contour, eccentricity and periphery sets of a strongly connected digraph D with respect to this metric have been defined. The boundary-type sets of the strong product of two digraphs is investigated in this article.

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Area of interest : Graph Theory

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Transit sets of two-point crossover

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Abstract

Genetic Algorithms typically invoke crossover operators to produce offsprings that are a "mixture" of two parents x and y. On strings, k-point crossover breaks parental genotypes at at most k corresponding positions and concatenates alternating fragments for the two parents. The transit set $R_k(x, y)$ comprises all offsprings of this form. It forms the tope set of an uniform oriented matroid with Vapnik-Chervonenkis dimension $k + 1$. The Topological Representation Theorem for oriented matroids thus implies a representation in terms of pseudosphere arrangements. This makes it

possible to study 2-point crossover in detail and to characterize the partial cubes defined by the transit sets of two-point crossover.

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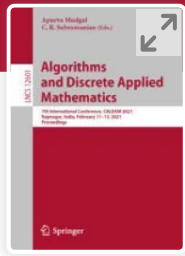
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Axiomatic Characterization of the Median Function of a Block Graph

Manoj Changat ✉, Nella Jeena Jacob &
Prasanth G. Narasimha-Shenoi

478 Accesses

Abstract

A median of a profile of vertices (a
sequence of vertices) on a connected
graph is a vertex that minimizes the sum of
the distances to the elements in the
profile. The median function has as output
the set of medians of a profile. Median
function is an important consensus

function for the location of a desirable
facility in a network. The axiomatic
characterization of the median function is
studied by several authors on special
classes of graphs like trees and median
graphs. In this paper, we determine the
median sets of all types of profiles and
obtain an axiomatic characterization for
the median function on block graphs, an
immediate generalization of trees.

Keywords

Profiles   **Block graph**   **Median sets**

Median function

Axiomatic characterization

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