

# Web of Science

Search

Search Results

My Tools

Search History

Marked List

 Look Up Full Text


Save to EndNote online

Add to Marked List

1 of 1

## Reaching a Nonlinear Consensus: Polynomial Stochastic Operators

By: [Saburov, M](#) (Saburov, Mansoor)<sup>[1]</sup>; [Saburov, K](#) (Saburov, Khikmat)

INTERNATIONAL JOURNAL OF CONTROL AUTOMATION AND SYSTEMS

Volume: 12 Issue: 6 Pages: 1276-1282

DOI: 10.1007/s12555-014-0061-0

Published: DEC 2014

[View Journal Impact](#)

### Abstract

We provide a general nonlinear protocol for a structured time-varying and synchronous multi-agent system. We present an opinion sharing dynamics of the multi-agent system as a trajectory of a polynomial stochastic operator associated with a multidimensional stochastic hypermatrix. We show that the multi-agent system eventually reaches to a consensus if either one of the following two conditions is satisfied: (i) every member of the group people has a positive subjective opinion on the given task after some revision steps or (ii) all entries of a multidimensional stochastic hypermatrix are positive. Numerical results are also presented.

### Keywords

**Author Keywords:** Multidimension stochastic hypermatrix; nonlinear consensus; polynomial operator

**KeyWords Plus:** FINITE-TIME CONSENSUS; MULTIAGENT SYSTEMS; COMPLEX NETWORKS; SUFFICIENT CONDITION; DYNAMICS; DELAYS; MODEL; LEADER; AGENTS; SYNCHRONIZATION

### Author Information

**Reprint Address:** Saburov, M (reprint author)

+ Int Islamic Univ Malaysia, Kuantan 25200, Pahang, Malaysia.

**Addresses:**

+ [ 1 ] Int Islamic Univ Malaysia, Kuantan 25200, Pahang, Malaysia

**E-mail Addresses:** [msaburov@gmail.com](mailto:msaburov@gmail.com); [khikmat2004@yahoo.co.uk](mailto:khikmat2004@yahoo.co.uk)

### Funding

Funding Agency	Grant Number
	IIUM-EDW B 13-019-0904

[View funding text](#)

### Publisher

INST CONTROL ROBOTICS & SYSTEMS, KOREAN INST ELECTRICAL ENGINEERS, BUCHEON TECHNO PARK 401-1506, 193 YAKDAE-DONG WONMI-GU, BUCHEON, GYEONGGI-DO 420-734, SOUTH KOREA

### Categories / Classification

**Research Areas:** Automation & Control Systems

**Web of Science Categories:** Automation & Control Systems

### Citation Network

9 Times Cited

51 Cited References

[View Related Records](#)



Create Citation Alert

*(data from Web of Science Core Collection)*

### All Times Cited Counts

10 in All Databases

9 in Web of Science Core Collection

0 in BIOSIS Citation Index

0 in Chinese Science Citation Database

0 in Data Citation Index

1 in Russian Science Citation Index

0 in SciELO Citation Index

### Usage Count

Last 180 Days: 1

Since 2013: 19

[Learn more](#)

### Most Recent Citation

Ganikhodjaev, Nasir. [ON LEBESGUE NONLINEAR TRANSFORMATIONS . BULLETIN OF THE KOREAN MATHEMATICAL SOCIETY](#), MAR 2017.

[View All](#)

### This record is from:

**Web of Science Core Collection**  
- Science Citation Index Expanded

### Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

**Document Information**

**Document Type:** Article

**Language:** English

**Accession Number:** WOS:000345394600015

**ISSN:** 1598-6446

**eISSN:** 2005-4092

**Journal Information**

**Impact Factor:** [Journal Citation Reports](#)

**Other Information**

**IDS Number:** AU1QG

**Cited References in Web of Science Core Collection:** **51**

**Times Cited in Web of Science Core Collection:** **9**

