3.3.1 JOURNAL PUBLICATIONS -2020-21

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number		
						Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list/Scopus/Web of Science/other, mention
Navodhanavum Lingopadeshangalum: Kochuseethayude Charithrasandharbham	Ambily R P	Malayalam	Thudi Research Journal Kannur University	2020-21	2320 - 8880	https://www.kannuruniversity.ac.in/en/academics/campus/all-departments/department-of-malayalam/research/journals/journals/	https://drive.google.com/file/d/1aUzALXiL37900o3BF6VlFIMoRSEYywSe/view?usp=drivesdk	Peer Reviewed

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'Fermi level tuning in modified Bi2Te3 system for thermoelectric applications'	P. Shyni, P.P.Pradyumnan	Physics	RSC Advances, The Royal Society of Chemistry,	2020-21	2046-2069	https://doi.org/10.1039/D0RA09278A	https://pubs.rsc.org/en/content/articlelanding/2021/ra/d0ra09278a	Yes
Time-Dependent Morphological Evolution of Bi2Te3 Nanotubes: A potential material for thermoelectric applications	Shyni P	Physics	ECS Journal of Solid State Science and Technology	2020-21	2162-8777	https://iopscience.iop.org/issue/2162-8777/9/10	https://iopscience.iop.org/article/10.1149/2162-8777/abc6ee/pdf	Yes
Stochastic Decomposition of Geo/Geo/1 Production Inventory System,	Anilkumar M.P. , K.P. Jose	Mathematics	Journal of Physics: Conference Series. IOP Publishing, 2021. , vol. 1850, no. 1, p. 012027	2020-21	1742-6596	https://iopscience.iop.org/year/1742-6596/Y2021	https://iopscience.iop.org/article/10.1088/1742-6596/1850/1/012027/pdf	Scopus indexed
A discrete time Geo/Geo/1 inventory system with modified Npolicy,	Anilkumar M.P. , K.P. Jose	Mathematics	Malaya Journal of Matematik, 2020,, Vol. 8, No. 3, 868-876, DOI:10.26637/MJM0803/0023	2020-21	ISSN: 2319-3786	https://www.malayajournal.org/	http://malayajournal.org/articles/MJM08030023.pdf	Yes

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Spectral Analysis of a Discrete-Time Queueing Model	Anilkumar M.P. , K.P. Jose	Mathematics	Communications in Computer andInformation Science , Springer ,2020 Vol. ITMM2020 pp. 404-416	2020-21	1865-0937	https://www.springer.com/series/7899	https://link.springer.com/chapter/10.1007/978-3-030-72247-0_30	Scopus Indexed
Discrete time priority queue with self generated interruption	Anilkumar M.P. , K.P. Jose	Mathematics	,AIP Conference Proceedings, 2020,, Vol. 2261,No.030031, DOI:10.1063/5.0016992	2020-21	1551-7616	https://aip.scitation.org/toc/apc/current	https://aip.scitation.org/doi/10.1063/5.0016992	Scopus Indexed
Karayil thuzhanja naavikan(ormmakkuripp)	Vijayakumar N P	Malayalam	Sahithya Chakravaalam	2020-21	2319-3255	https://keralasahityaakademi.org/%E0%B4%B8%E0%B4%BE%E0%B4%B9%E0%B4%BF%E0%B4%A4%E0%B5%8D%E0%B4%AF-%E0%B4%9A%E0%	https://drive.google.com/file/d/1ZNgpBjqRMOTPTs7PGOQSYTLfzBkAwJRh/view?usp=drive_link	Yes

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Discrete time priority queuewith self generated interruption	Anilkumar M.P. , K.P. Jose	Mathematics	,AIP Conference Proceedings, 2020,, Vol. 2261,No.030031, DOI:10.1063/5.0016992	2020-21	1551-7616	https://aip.scitation.org/toc/apc/current	https://aip.scitation.org/doi/10.1063/5.0016992	Scopus Indexed
Pazhamcholl ukalile Kathirum Pathirum	Dr. Unni Amapparakkal	Malayalam	Vijnankairali	2020-21	2349-1051	https://www.keralabhashainstitute.org/node/173	https://drive.google.com/file/d/1K9IZos5UK9pvWrueeZkfUZF0xMpn7weV/view?usp=sharing	Yes

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നവോത്ഥാനവും ലിംഗോപദേശങ്ങളും

അമ്പിളി ആർ.പി.

സമൂഹം ചരിത്രപരമായി ആദർശവല്കൃതമായ സങ്കല്പങ്ങളെ ശരിയായി പ്രതിഷ്ഠിച്ചുകൊണ്ടു അപഭ്രംശങ്ങളെ വർജ്ജിക്കുന്ന പ്രകിയ നിരന്തരം നടത്തുന്നതുകാണാം. വർഗ്ഗം, ജാതി, ലിംഗം എന്നിവയിലൂടെയാണ് ഈ ആദർശവല്കൃതമായ വാർപ്പുമുശകളെ കെട്ടിയുണ്ടാക്കുന്നതും സമൂഹത്തിലെ മനുഷ്യരിലേക്ക് അവ അടിച്ചേല്പിക്കുന്നതും. അങ്ങനെ ഇത്തരം ആധിപത്യസ്വഭാവമുള്ള മുശകളിലേക്ക് തങ്ങളെ പരുവപ്പെടുത്താൻ വ്യക്തികൾ നിർബന്ധിതരാകുന്നു. നല്ലത് - ചീത്ത എന്ന ദ്വന്ദ്വസങ്കല്പങ്ങൾ മിക്കസമയത്തും സമൂഹത്തെ നിയന്ത്രിച്ചിരുന്നുവെന്നു കാണാം. ഇവയ്ക്കിടയിലെ അനേകം സ്ഥാനങ്ങൾ ബോധപൂർവ്വം മറക്കുകയോ തള്ളിക്കളയുകയോ ചെയ്യുകയാണ് അതതുകാലത്തെ വ്യവസ്ഥിതി ചെയ്തുവന്നിരുന്നത്. അങ്ങനെ നല്ല സ്ത്രീ, നല്ല പുരുഷൻ, നല്ല കുടുംബം തുടങ്ങിയവ സൃഷ്ടിക്കപ്പെടുന്നു. ഇത്തരത്തിലുള്ള ആദർശതിടങ്ങളുടെ പ്രത്യയശാസ്ത്രരൂപങ്ങൾ സമൂഹത്തിലെ മതം, വിദ്യാലയം തുടങ്ങിയ സ്ഥാപനങ്ങളിലൂടെയുടെയും കലകളിലൂടെയുമാണ് വിതരണം ചെയ്യുന്നത്. സാഹിത്യത്തിലെ ഉപദേശമായി പ്രത്യക്ഷപ്പെടുന്ന ഗുണപാഠകഥകളാണ് 'നേർവഴി'ക്ക് നയിക്കാനുള്ള മാർഗ്ഗങ്ങളായി സമൂഹം പൊതുവെകണ്ടത്. പഞ്ചതന്ത്രം, കഥാസരിത്സാഗരം, ഇതിഹാസങ്ങളിലെയും പുരാണങ്ങളിലെയും ഉപകഥകൾ തുടങ്ങിയ ജനപ്രിയരൂപങ്ങൾ ഉപദേശങ്ങളിലൂടെ ഓരോകാലത്തും നല്ലതുകളെ സൃഷ്ടിക്കുകയും അപരങ്ങളെ മഴിവാക്കിയതും കാണാം. ലിംഗപരമായ വാർപ്പുമുശയത്ത് സമൂഹം ചെലുത്തിയ ജാഗ്രത ചരിത്രപരമായി

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Fermi level tuning in modified Bi_2Te_3 system for thermoelectric applications

P. Shyni and P. P. Pradyumnan*

The techniques of size reduction and defect engineering have attracted great interest as an effective strategy for developing new and modified thermoelectric materials with high performance. Here, we investigated the thermoelectric properties of the Bi_2Te_3 system modified by Fermi level tuning through the methods of nanostructuring and doping. Band structure modification and Fermi level shift contribute to the better thermoelectric performance of the material. A minimum thermal conductivity of 0.72 W K^{-1} was obtained at 440 K with a reduction of 50% as compared to the pristine sample. The improved transport properties along with considerably reduced thermal conductivity result in a two-fold improved figure of merit of 0.295 at 420 K for the nanostructured sample $Bi_{0.5}Sb_{1.5}Te_3$ over pristine Bi_2Te_3.

Introduction

Nowadays, research has been focused on searching for alternative energy sources as a remedy for the energy crisis and environmental deterioration.[1–5] The demand for energy is rising significantly and we still depend mainly on fossil fuels for energy generation. Tremendous energy is wasted in the form of heat, escalating global warming. Thermoelectric materials, capable of interconverting heat and electricity, can be assembled to construct a thermoelectric generator (TEG) which can be used to collect wasted heat and to convert it into useful energy, thereby improving fuel efficiency. Thermoelectric power generation offers an alternative energy source and sustainable technology. Without mechanical parts, noise and gas emission, TEGs can work for a long period without any maintenance. TEGs are utilized in deep space missions, automotive industry, gas and temperature sensors and in many other applications.[6,7]

However, the use of TEGs is limited due to their low conversion efficiency. An efficiency of 12% is reported for Bi_2Te_3 based skutterudite materials, but still non-competitive with conventional machines.[8] The ever-growing market of alternative energy sources demand thermoelectric materials with better conversion efficiency. The conversion efficiency of a thermoelectric material can be expressed in terms of its dimensionless figure of merit, $ZT = S^2\sigma T/\kappa$, where S, σ, κ and T represents the Seebeck coefficient, electrical conductivity, thermal conductivity and absolute temperature respectively.[2] A good thermoelectric material should have high value of Seebeck coefficient for producing more voltages for a given temperature gradient, low electrical resistivity for reducing Joule's heating and low thermal conductivity to maintain the applied temperature gradient across the legs. Thermoelectric figure of merit of a material is the parameter evaluating all these interconnected properties. The main challenge in designing a superior thermoelectric material is to decouple these inter-related physical quantities via various strategies and optimize them simultaneously.

Bi_2Te_3 has been recognized as a benchmark thermoelectric material for near-room temperature power generation and cooling applications. It is a multi-valleyed material with a highly anisotropic isoenergy surface near the L point in the Brillouin zone. Thermoelectric devices based on bismuth telluride are widely used in the fabrication of thermal sensors, laser diodes, thermoelectric refrigeration and power generation.[9–16] The large-scale production of Bi_2Te_3 based alloys has been limited by their relatively low efficiency. The conversion efficiency of Bi_2Te_3 is to be improved so that their practical applications can be boosted in wide areas of interest. The idea of using low dimensional structures to enhit the value of figure of merit was proposed in early 1990's to improve the thermoelectric performance of materials, which opens up a new era in the field of thermoelectricity. Nanosized Bi_2Te_3 with excellent thermoelectric properties was reported by several research groups and the high performance is attributed to the reduction in grain size and thermal conductivity reduction at phonon scattering centers.[10–12] The reduction in dimensions enhances (i) the density of states near the vicinity of the Fermi energy (ii) the phonon boundary scattering at interfaces and (iii) carrier mobility at a given concentration due to quantization effect. Among Bi_2Te_3 based alloys, n-type $Bi_2(Te,Se)_3$ and p-type $(Bi,Sb)_2Te_3$ alloys are of great interest for room temperature applications because of their potential for improving the conversion efficiency by structural and compositional modifications.[14,15] The electrical transport properties can be optimized by modifying the carrier concentration and energy band

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Time-Dependent Morphological Evolution of Bi_2Te_3 Nanotubes: A Potential Material for Thermoelectric Applications

P. Shyni[1] and P. P. Pradyumnan[1]

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Abstract

Abstract

Bi_2Te_3 nanotubes covered with nanoplates have been synthesized by a single-step, surfactant assisted hydrothermal method and the effects of different reaction conditions including reaction time and temperature have been investigated. Nanotubes with circular, pentagonal and hexagonal cross sections are formed at 180 °C at a minimum reaction time of 8 h. The Bi_2Te_3 nanostructure characterizations

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Stochastic Decomposition of Geo/Geo/1 Production Inventory System

Anilkumar M.P.[1] **and K. P. Jose**[2]

[1] Post-Graduate Department of Mathematics, T.M.Govt. College, Tirur-676 502 Kerala, India
[2] P. G. & Research Dept. of Mathematics, St.Peter's College, Kolenchery - 682 311 Kerala, India.

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Abstract. This paper considers an (s, S) inventory system with production in which demand occurs according to a Bernoulli process and service time follows a geometric distribution. The maximum inventory that can be accommodated in the system is S. When the items in the on-hand inventory are reduced to a pre-assigned level of s due to service, production is started. The production time follows a geometric distribution. The production process is stopped as soon as the inventory level reaches the maximum. Customer who arrives during the inventory level is zero is assumed to be lost. Using the stochastic decomposed solution obtained for the steady-state probability vector, we analysed the inventory cycle. A suitable cost function is defined using the performance measures. Numerical experiments are also incorporated to highlight the minimum value of the cost function against the parameter values.

Keywords: Discrete-time production inventory, Bernoulli process, Geometric distribution, Stochastic decomposition, Matrix-Analytic Method.

Mathematics Subject Classification: 60K25, 90B05 and 91B70

1. Introduction

Queueing systems with inventory have extensively studied by several researchers for the last few decades. A complete review of queueing inventory models was done in the survey by Krishnamoorthy et al. [7]. Positive service time in Queueing inventory was introduced by Sigman and Simchi-Levi [20]. Assuming Poisson arrivals and arbitrary distribution for service time, they developed an explicit expression for the expected delay in terms of underlined system parameters. Berman et al. [3] proposed the processing time of inventory with deterministic service. The notion in that paper resulted in the situation for the analysis of queueing inventory in which demands occur when items in the inventory are stock out. In the production inventory system with positive service time and no restriction for customers to enter in the system when the inventory level zero is analysed by Krishnamoorthy and Narayanan [8]. The authors assumed that the server goes on vacation when either there is no inventory or no customers present. Krishnamoorthy and Jose [6] compared three retrial queueing inventory systems and analysed them using Matrix-Analytic Method. They obtained algorithmic solutions for the model and found out the most profitable model within the given parameter values.

The first reported work on closed-form expression in the queueing inventory system is carried out by Schwarz et al. [18]. The product form solution to this model is obtained by considering the

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On the occasion of Professor **Gaston M. N'Guérékata's 70th birthday**, the Editorial Board of the "Malaya Journal of Matematik" is pleased to announce that a special issue will be devoted to the publication in his honour. Professor N'Guérékata is a member of the Editorial Board.

Submission Deadline: **August 31, 2023**; Publication Date: **October 01, 2023**

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A discrete time $Geo/Geo/1$ inventory system with modified N-policy

M. P. Anilkumar [1] and K. P. Jose[2]*

Abstract

This paper considers a discrete-time (s, S) inventory system with positive service and N-policy. The arrival of customers constitutes a Bernoulli process. The system will be on vacation up to N customers and it starts batch service of size N with geometrically distributed service time. The subsequent customers who arrive during the batch service period are served in a single with geometrically distributed service time. The maximum storage of inventory is S. Whenever the on-hand inventory level drops to prefixed level s, an order for replenishment is placed. Lead time is also geometrically distributed. The system is analysed and the stability condition is derived using Matrix Analytic Method. Busy period, waiting-time distribution, reorder time distribution and inter-replenishment time are obtained. Numerical experiments are also incorporated to study system variation of system parameters.

Keywords

Bernoulli process, Discrete time inventory, Geometric distribution, Matrix Analytic Method, N-Policy.

AMS Subject Classification

60K25, 90B05, 91B70.

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1. Introduction

The concept of discrete-time is mainly introduced by Meisling [1] in which time is considered as a discrete variable. Neuts et al. [2] analysed time-dependent behaviour of a discrete-time queue in terms of a bivariate Markov chain and proved continuous-time queue can be considered as the limiting case of the discrete-time queue. Noted inventory work on the discrete-time queue is of Lian et al. [3] in which inventory system with a common life is considered. queueing systems with inventory have studied by several researchers in recent years. A detailed review and direction for some future work on continuous-time inventory models involving positive service time are given in Krishnamoorthy et al. [4]. Krishnamoorthy and Jose [5] studied queues with varying buffer sizes depending on the inventory level. The analysis of the optimal value of queue length for starting service is done by Yadin and Naor [6]. They optimized the queue size for turning the server on, assuming that the server is turned off when the queue is empty. Heyman [7] studied economic behavior of

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M. P. Anilkumar & K. P. Jose

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Abstract

This paper analyses a discrete-time queueing model with two modes of service and N-policy. The arrival of customers constitutes a Bernoulli process. There are two types of service; mode 1 and mode 2 of which service times are geometrically distributed with parameters q_1 and q_2 respectively, where $q_1 < q_2$, so that the mode 2 is an accelerated service mode. Initially, the service starts with mode 1 and when the number of customers reaches N, the server tries to change the type of the service to mode 2 with probability θ. Once the type of the service is changed from mode 1 to mode 2, it will resume the reduced rate when either of two cases happens; i) the number of customers in the system is either less than N and ii) the number of customers is reduced to zero. These two cases are studied in Model I and Model II respectively. The spectral value (or eigenvalue) approach is used to analyze Model I and consequently obtain the rate matrix of the model. Using the rate matrix of Model I, we analyze Model II. On the basis of a suitable cost function, numerical experiments are conducted for the models and obtained the optimum value of N.

Keywords

Discrete-time queue Bernoulli process Geometric distribution Eigenvalue Rate matrix

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This paper considers discrete time (s, S) inventory *Geo*/*Geo*/1 priority queue formed by the customers' induced interruption during service. An arriving customer enters into a high priority queue of infinite capacity. During his/her service, the service may be interrupted due to own reasons with some probability. The interrupted customer is moved to a lower priority queue of infinite capacity. An item in the inventory is supplied whenever a customer leaves from high priority queue after interrupting/completing the service. The customer in the lower priority queue is served according to preemptive priority discipline. Inter-arrival time, service time and lead time are considered to be geometrically distributed. We use the matrix analytic method to analyse the model. The necessary and sufficient condition for the stability of the system is obtained. The marginal distributions of both higher and lower priority queue lengths are studied. Numerical experiments are incorporated to draw special attention to the importance of the model.

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1. Aissani, A., Lounis, F., Hamadouche, D., Taleb, S.: Analysis of customers' impatience in a repairable retrial queue under postponed preventive actions. Am. J. Math. Manag. Sci. **38**(2), 125–150 (2019)

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K. P. Jose & M. P. Anilkumar

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Abstract

We consider an (s, S) production inventory system in which demand occurs according to a Bernoulli process and service time follows a geometric distribution. The maximum inventory that can be accommodated in the system is S. When the on-hand inventory is reduced to a preassigned level of s due to service completion (and consequent purchase of exactly one item by each customer), production is started. The production time for each item (inter-production time) follows a geometric distribution. When the inventory level becomes zero, an instantaneous local purchase of one/s/S units is made to meet the demand. These three types of local purchases are discussed as three separate models. Using the closed-form solution obtained for the steady-state probability vector and by constructing an appropriate cost function, we compare these models with the help of a few numerical work.

Keywords

Discrete-time production inventory Bernoulli process Geometric distribution

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Discrete time priority queue with self generated interruption

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This paper considers a discrete time priority queue formed by the customers induced interruption during the service time. The arrivals of customers are modeled by the Markovian Arrival Process (MAP) and the service time follows discrete phase type distribution. During the service, the customer may interrupt with a pre-assigned probability and the interrupted customers are moved to lower

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