University of Delhi

RC/2015/9435 31 August, 2015

The Director,
Cluster Innovation Centre
University of Delhi
Delhi 110007

Subject: - **Innovation Projects 2015-16**

Dear Sir,

The University of Delhi is pleased to announce the third round of the undergraduate research initiative in colleges, Innovation Projects 2015-16. You will be glad to know that the following project submitted by your college has been selected for award

Project Code: CIC 308
Project Title: Translating "Lilavati Of Bhaskara" In The Realm Of Present Mathematics Curriculum
The distribution of grant under different budget heads as below:

Sr. No.	Budget Head	Amount
1.	Equipment/Consumables	Rs 1,25,000/-
2.	Stipends	Rs. 1,20,000/- (1000x10x12)
3.	Travel	Rs 80,000/-
4.	Honorarium	Rs 25,000/-
5.	Stationery/Printing	Rs 20,000/
6.	Contingency	Rs 55,000/-
	Total	Rs 450,000/-
Rs 4.5 lakhs (Rupees four lakhs fifty thousand only)		
Amount to be released in first phase by Finance Branch- Rs 3,00,000/		

Budget head No. 1 and half of the remaining grant will be released as the first instalment. The second and final instalment will be released after submission of half-yearly report (by 15 February 2016), satisfactory review and recommendation of release of the second instalment.
Please refer to the detailed guidelines for implementation of the project. Any queries may be addressed to- innovationprojects1516@gmail.com.

With best wishes,

Yours sincerely,

Prof. Malashri Lal

Utilization Certificate
Innovation Project 2013-15

Project Code :CIC-203

Financial Grant under Innovation Project scheme

College: Cluster Innovation Centre, University of Delhi
Project Investigators: Dr. Jyoti Sharma

Grant sanctioned			
S.No.	Budget head	Amount sanctioned Rs	Amount utilized Rs
1	Equipment/Consumables	2,20,000(-151)	2,19,577 /-
2	Travel	95,000/-	64,086/-
3	Stipend	1,20,000/-	1,17,000/-
4	Honorarium	25,000/-	8,000/-
5	Stationery	20,000/-+151/-	20,151/-
6.	Contingency	70,000/-	69,838/-
Total amount utilized Rs	Four Lakh Ninety Eight Thousand Six Hundred Fifty Two Only (Rs.4,98,652/-)		
Amount remaining Rs	Fifty One Thousand Three Hundred Forty Eight Only (Rs.51,348/-)		

Certified that out of **Rs. 5,50,000/-** sanctioned under the Innovation Projects scheme 2013-14, **Rs.4,98,652/-** has been utilized during the period of the project. The remaining amount **Rs.51,348/-** ~~is being~~ returned back to the University ~~vide cheque~~ will be returned back to University later.

31/03/15

Signature of Project Investigator
(Jyoti Sharma)

Signature of Director
(Prof. M.M. Chaturvedi)

Dr. Jyoti Sharma
Cluster Innovation Centre
University of Delhi

निदेशक/Director
संकुल नवपवर्तन केन्द्र
Cluster Innovation Centre
दिल्ली विश्वविद्यालय/Delhi University
दिल्ली–११०००७/New Delhi-110007

UNIVERSITY OF DELHI

PROJECT COMPLETION CERTIFICATE

INNOVATION PROJECTS 2015-16

Implementing Authority	:	University of Delhi
Name of College	:	Cluster Innovation Centre
Code of Project	:	CIC-302
Title of Project	:	Impact Analysis of Programmes for Enhancing Undergraduate Learning and Teaching Experiences through Innovative Projects
Name of Project Investigators	:	Dr. Dorje Dawa Dr. Deepika Bhaskar
Amount Sanctioned	:	Rs. 4,00,000/- (Rupees Four Lac only)

Certified that the Final Report and Utilization Certificate have been submitted for the Project.

Coordinator, Innovation Desk

T.R. Sethi
Dean Research (PS&MS)

Pani Dua.
Dean Research (H&SS)

Dean Research (LS)

Pani Dua.
Dean Academic Activities & Projects/
Chairperson, Research Council

UNIVERSITY OF DELHI
DELHI – 110007

The Director
Cluster Innovation Centre
University of Delhi Campus
Delhi-110007

PAAP-2583
26/11/13

Subject: - **Innovation Projects 2013-14**

Dear Sir/Madam,

The scheme for Innovation Projects from colleges for the year 2013-14 attracted a large number of applications. You will be glad to know that the Innovation project from your college, titled "Impact of FDI in multibrand retail on local kirana shops" has been selected for support. You have been allotted the Project Code No. **CIC 205** and this may be referred in all correspondence/reports on the subject.

The Hon'ble Vice Chancellor is pleased to approve a total grant of Rupee 4.50 lakhs for the project.
The budget guidelines of the project are as follows:

Sr. No.	Budget Head	Amount
1.	Equipment/Consumables	Rs 1,25,000/-
2.	Stipends	Rs. 1,20,000/- (1000x10x12)
3.	Travel	Rs 65,000/-
4.	Honorarium	Rs 25,000/-
5.	Stationery/Printing	Rs 20,000/
6.	Contingency	Rs 95,000/-
	Total	Rs 450,000/-
Rs 4.5 lakhs (Rupees four lakhs fifty thousand only)		

Please refer to the detailed guidelines attached for implementation of the project.
Kindly acknowledge receipt of the letter and grant. Any queries may be addressed to innovationsdu@gmail.com or 27666227. The cheque for the first bhase is being issued by the university separately.
With best wishes,

Yours sincerely,

Registrar

University of Delhi

RC/2015/9435

31 August, 2015

The Director,
Cluster Innovation Centre
University of Delhi
Delhi 110007

Subject: - **Innovation Projects 2015-16**

Dear Sir,

The University of Delhi is pleased to announce the third round of the undergraduate research initiative in colleges, Innovation Projects 2015-16. You will be glad to know that the following project submitted by your college has been selected for award

Project Code: CIC 310
Project Title: Weaving Dreams For Destitutes
The distribution of grant under different budget heads as below:

Sr. No.	Budget Head	Amount
1.	Equipment/Consumables	Rs 1,25,000/-
2.	Stipends	Rs. 1,20,000/- (1000x10x12)
3.	Travel	Rs 80,000/-
4.	Honorarium	Rs 25,000/-
5.	Stationery/Printing	Rs 20,000/
6.	Contingency	Rs 55,000/-
	Total	Rs 450,000/-
Rs 4.5 lakhs (Rupees four lakhs fifty thousand only)		
Amount to be released in first phase by Finance Branch- Rs 3,00,000/		

Budget head No. 1 and half of the remaining grant will be released as the first instalment. The second and final instalment will be released after submission of half-yearly report (by 15 February 2016), satisfactory review and recommendation of release of the second instalment.
Please refer to the detailed guidelines for implementation of the project. Any queries may be addressed to- innovationprojects1516@gmail.com.

With best wishes,

Yours sincerely,

Prof. Malashri Lal

Research Council
University Of Delhi

Prof. Malashri Lal, Chairperson, (Dean, Academics)
Prof. Ajay Kumar, Member, Dean Research (PS&IMS)
Prof. Girishwar Misra, Member, Dean Research (H&LSS)
Prof. M. M. Chaturvedi, Member, Dean Research (LS)
Dr. Deepika Bhaskar, Dy.Dean Research

DRCH/R&D/2013-14/ 4155

21 October, 2013

Dr. Shobha Bagai
Cluster Innovation Centre
University of Delhi
Delhi

Subject: **Scheme to strengthen Research & Development by providing funds to University Faculty (2013-14).**

Dear Sir/Madam,

The Hon'ble Vice-Chancellor is pleased to sanction you a research grant of **Rs. 2.8 lakhs (Rupees two lakhs and eighty thousand only)** under the above mentioned scheme. You can spend the approved amount in the budget- heads, as specified below:

Consumables, Softwares, Photocopies, Purchase of books, Computers peripherals etc.	60-100%
Travel (local & within India related to research)	Up to 10%
Minor equipment & maintenance of equipment	Up to 20%
Contingencies	Up to 10%

You are requested to utilize the funds latest by **March 15, 2014** and send the Utilization Certificate to the Finance Branch. A report of 2000 words on how the money has been utilized for furthering your research activities and enhancing the publication profile is to be submitted along with a copy of the Utilization Certificate to the Research Council latest by **April 07, 2014.**

The contribution made to your research work and publication by the R and D grant must be duly acknowledged.

The findings of R and D projects may be presented at a Seminar after the submission of the report.

With best wishes for productive research.

Thanking you,

Yours sincerely,

ML

(MALASHRI LAL)

Convention Hall Courtyard, Viceregal Lodge University of Delhi, Delhi – 110007,
Phone No. 011-27666227, 011-27667725 Extn.1107, Fax No. 011-27662284 E-mail: research-council@du.ac.in

Prof. Malashri Lal, Chairperson, (Chairperson)
Prof. Ajay Kumar, Member, Dean Research (PS&MS)
Prof. Pami Dua, Member, Dean Research (H&SS)
Prof. M. M. Chaturvedi, Member, Dean Research (LS)
Dr. Deepika Bhaskar, Dy.Dean Research

Research Council
University Of Delhi

RC/2014/6820

October 15, 2014

Dr. Shobha Bagai
Cluster Innovation Centre
Universtiy of Delhi
Delhi-110007

Subject : Research & Development grant 2014-15.

Dear Sir/Madam,

The Hon'ble Vice-Chancellor is pleased to sanction a grant of Rs. 1,20,000 (Rupees One lakh twenty thousand thousand only) under the Research & Development scheme 2014-15 for the Project entitled "Natural Convective Flow in Porous Medium Saturated with Nanofluid "

The budget heads under which the grant has been sanctioned is as follows:

Budget Heads	Amount (in Rs.)
Consumables/Software/Books	80,000
Minor Equipment	10,000
Travel	10,000
Contingency	20,000
Total	**1,20,000**

- The sanctioned amount can be used only under the approved budget-heads and the guidelines issued at the time of application have to be strictly followed.
- An undertaking must be submitted before utilization of the travel head mentioning that it will not be used for travel to home town or areas near it.
- The grant does not cover maintenance/AMCs. Any minor repair related to research proposal can be covered in the contingency head.

The grant has to be utilized upto September 30, 2015. The Utilization Certificate is to be sent to the Research Council accompanied by a report of 2000 words on how the money has been utilized for furthering your research activities and enhancing the publication profile before October 5, 2015.
The contribution made to your research work and publication by the R & D grant must be duly acknowledged.

With best wishes for productive research.
Thanking you
Yours sincerely,

(Prof. Malashri Lal)

Research Council
University Of Delhi

Prof. Malashri Lal, Chairperson, (Chairperson)
Prof. Ajay Kumar, Member, Dean Research (PS&MS)
Prof. Pami Dua, Member, Dean Research (H&SS)
Prof. M. M. Chaturvedi, Member, Dean Research (LS)
Dr. Deepika Bhaskar, Dy.Dean Research

RC/2015/9677

October 15, 2015

Dr. Shobha Bagai
Cluster Innovation Centre
University of Delhi
Delhi-110007

Subject: Research & Development grant 2015-16.

Dear Sir/Madam,

You have been sanctioned the following grant under the Research & Development scheme 2015-16 of the University of Delhi.
The budget heads under which the grant has been sanctioned are as follows:

Budget Heads	Amount (in Rs.)
Contingency	30,000
Consumables/Equipment	1,20,000
Total	**1,50,000**
Total in Words	**Rupees One lakh fifty thousand only**

Kindly note the following:

- The guidelines issued at the time of application and additional guidelines attached have to be strictly followed.
- The sanctioned amount can be used only under the approved budget-heads.
- The grant is sanctioned for a period of one year starting from 15.10.2015.
- A quality publication must be reported along with a copy of the same by the end of the year along with the final report for any further consideration for the grant for next year.
- The support received from the University as R&D grant must be acknowledged in the publication from the research undertaken in the scheme.

The Utilization Certificate along with a final report in the form of a research paper must reach the office of the Research Council by October 30, 2016.

With best wishes for productive research.

Yours sincerely,

Prof. Malashri Lal

ज्ञान-विज्ञान विमुक्तये

University Grants Commission
Bahadur Shah Zafar Marg
New Delhi - 110 002

SPEED POST

F. No. 6-268/2014(TG)

The Principal
Shyam Prasad Mukherjee College,
Punjabi Bagh (West), New Delhi-110032

28 AUG 2014

Sub: Travel Grant to college teachers for presenting papers in International Conference(s) – Acceptance of proposal.

Sir,

This has reference to your application on the captioned subject, I am directed to inform you that the Commission has accepted the proposal for financial assistance to **Dr. Shobha Bagai** for presenting the paper entitled **Effect of Temperature Dependent Viscosity on Natural Convective Boundary Layer Flow Over a Horizontal Plate Embedded in a Nano-Fluid Saturated Porous Medium** in the conference **5th ECI International Conference on Porous Medium and New Application in Science, Engineering & Industry** to be held in **USA** from **22nd-27th June, 2014** and has agreed to provide grant to the extent of 100% of the approved expenditure on this account to the institution subject to the conditions indicated in Appendix-I. The proposal is approved with the condition that the College should be fit under section 2(f) & 12(B) of the UGC Act, failing which it will be considered cancelled automatically.

1. Statement of account giving details of expenditure incurred on various items Viz-travel, Airport Tax, Registration fee and daily allowance.
2. Utilisation Certificate in the prescribed form (Appendix-II) from the college auditor/Chartered Accountant for the total expenditure incurred on the visit.
3. Details of assistance received from and or facilities provided by the organizers of the conference or any other similar foreign agency.
4. Amount made available by the College/University/State Govt. and other sources for meeting 100% of approved expenses.
5. Amount payable for each item by the University Grants Commission as per terms and conditions.
6. A brief note on the participation of the teacher concerned in the International Conference and on visit to other academic institutions if excursion ticket has been purchased for the visit.

University of Delhi

Teaching Excellence Award for Innovation

On the occasion of 93rd Foundation Day, the University of Delhi recognizes the excellence in teaching and innovation achieved by ***Shobha Bagai*** *during the academic session 2014-15.*

Title of Innovation Project ***Impact of FDI in Multibrand Retail on Local Kirana Shops***

College/Centre ***Cluster Innovation Centre***

1 May 2015

Prof Dinesh Singh
Vice Chancellor

UNIVERSITY OF DELHI

Research Display at the Convocation Ceremony

19 November 2016

Certificate of Best Poster

Project Code: CIC 310

Project Title: :

Weaving Dreams for Destitutes

College: Cluster Innovation Centre

Prof. Ajay Kumar
Dean Research PS&MS

Prof. M.M. Chaturvedi
Dean Research LS

Pami Dua.
Prof. Pami Dua
Chairperson, Research Council

Dr. Deepika Bhaskar
Coordinator, Innovation Desk

			9.Nikita Shrivastav B. Com. (P) II Year 10. Anjuali B. Com. (P) II Year			Culture Behavioral Patterns	
17.	Dr. Gauri Mishra, Associate Professor Dr. Meera Nangia, Associate Professor Dr. Vijaya Rajni, Associate Professor	Prof. Binod Khadria, Professor of Economics and Education, and Chairperson,Zakir Husain Centre for Educational Studies, School of Social Sciences, Jawaharlal Nehru University, New Delhi 110067	1. Rupal Shard Eco Hons.second year 2. Anchal Gupta Eco Hons.second yr 3. Monica Bansal Eco Hons. Second yr. 4. Vishal Khatri B.Sc.computers second sem. 5. Utsav Khandelwal B.Sc computers Second sem. 6. Abhishek Batra B.Sc computers Second sem. 7. Sukarm Saluja MMRB second yr. 8. Gajendra Thakur MMRB second yr. 9. Ayushi Pahuja Eco.hons first year 10.Savera Gujral BBE hons.first year	College of Vocational Studies	English Commerce Economics	Impact of Socio-Economic-culture profile of students on Academic Performance	CVS – 101
18.	Dr. B. Biswal, Associate Professor Dr. Shobha Bagai, Associate Professor Dr. Sanjeev Singh, Faculty IIC, SDC	Dr. Aparna Mehra IIT Delhi Associate Professor in Mathematics Research Area-Optimization Theory 011-26597106	1 Fidel Kachari B.Tech. /BS Innovations II year, Roll No. 380 2 Adhiraj Singh Rawat B.Tech. /BS Innovations II year, Roll No. 505 3 Mayank Jain B.Tech. /BS Innovations II year, Roll No. 613 4 Shreya B.Tech. /BS Innovations II, Roll No. 631 5 Nissar Ali Malik B.Tech. /BS Innovations II,	Cluster Innovation Centre	Physics Mathematics Electronics & Computer Sci.	24 x 7 water supply in villages and small towns of India	CIC - 101

			Roll No.783 6 Akshee Jain B.Tech. /BS Innovations II, Roll No.848 7 Vikash B.Tech. /BS Innovations II, Roll No. 871 8 Chandrani Kumari B.Tech. /BS Innovations II, Roll No. 1087 9 Akshay Kheral B.Tech. /BS Innovations II, Roll No. 1169 10 Aman Thakur B.Tech. /BS Innovations II, Roll No. 1294 11 Mayank Arora B.Tech. /BS Innovations II, Roll No.1545 12 Nikita Garg B.Tech. /BS Innovations II, Roll No. 1667 13 Tushar Mishra B.Tech. /BS Innovations II, Roll No. 1729 14 Santoshi B.Tech. /BS Innovations II, Roll No. 1771				
19.	Dr. B. Biswal, Associate Professor Dr. Shobha Bagai, Associate Professor Dr. Sanjeev Singh, Faculty IIC, SDC	Dr. Varsha Banerjee, IIT Delhi Associate Professor In Physics Deptt. Research Area- Statistical Physics Telephone No. 011-26591335	1 Himani Swarup B.Tech. /BS Innovations II year Roll No.299 2 Sumit Yadav B.Tech. /BS Innovations II year Roll No.521 3. Latisha Khattar B.Tech. /BS Innovations II year Roll No.619 4 Manjeet	Cluster Innovation Centre	Physics Mathematics Electronics & Computer Sci.	Solution for road management from modeling and simulation of traffic flow on selected roads of Delhi	CIC – 102

			B.Tech. /BS Innovations II year Roll No.738 5 Om Prakash Yadav B.Tech. /BS Innovations II year Roll No.792 6 S. Pavitra B.Tech. /BS Innovations II year Roll No. 881 7 Akshay Karwal B.Tech. /BS Innovations II year Roll No.1016 8. Puneet Kumar B.Tech. /BS Innovations II year Roll No.1102 9 Sandeep Kumar B.Tech. /BS Innovations II year Roll No.1107 10 Geetika B.Tech. /BS Innovations II year Roll No.1361 11 Rahul B.Tech. /BS Innovations II year Roll No.1387 12. Sangeeta B.Tech. /BS Innovations II year Roll No.1558 13 Navneet Sahu B.Tech. /BS Innovations II year Roll No.1605 14 Manju Kumari Meena B.Tech. /BS Innovations II year Roll No.1716 15 Shrija Saha B.Tech. /BS Innovations II year Roll No.1739				

Transp Porous Med (2012) 94:277–288
DOI 10.1007/s11242-012-0004-2

Effect of Variable Viscosity on Free Convective Heat Transfer over a Non-isothermal Body of Arbitrary Shape in a Non-Newtonian Fluid Saturated Porous Medium with Internal Heat Generation

Shobha Bagai · Chandrashekhar Nishad

Received: 19 March 2012 / Accepted: 30 March 2012 / Published online: 20 April 2012

Abstract Similarity solutions are proposed for the analysis of free convection flow over a non-isothermal body of arbitrary shape embedded in porous media in the presence of internal heat generation. The porous medium is saturated with non-Newtonian power law fluid. The effect of temperature dependent viscosity on heat transfer rates is investigated. The linearized version of the Arrhenius law for temperature dependent viscosity is considered and it is shown that the heat transferred is more for a less viscous fluid.

Keywords Porous media · Non-isothermal axisymmetric body · Non-Newtonian fluid · Temperature · Dependent viscosity

List of symbols

c_{pf}	Specific heat at constant pressure of the fluid
f	Dimensionless stream function
g	Acceleration due to gravity
k_m	Effective thermal conductivity of porous medium
$K^*(n)$	Modified permeability
Nu_x	Local Nusselt number
q'''	Internal heat generation per unit volume
q_w	Local surface heat flux
r	Function representing wall geometry
Ra_x	Local Rayleigh number
T	Temperature
u, v	Velocity component in x-direction and y-direction
x, y	Boundary layer co-ordinates

S. Bagai (✉) · C. Nishad
Department of Mathematics, University of Delhi, New Delhi, India
e-mail: shobhabagai@gmail.com

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Free convection in a non-Newtonian fluid along a horizontal plate embedded in porous media with internal heat generation☆

Shobha Bagai *, Chandrashekhar Nishad

University of Delhi, New Delhi, India

ARTICLE INFO

Available online 16 February 2012

Keywords:
Free convection
Non-Newtonian fluid
Porous media
Internal heat generation

ABSTRACT

Similarity solutions for the problem of free convection flow over a non-isothermal horizontal plate embedded in porous media are investigated in the presence of internal heat generation. The porous medium is saturated with non-Newtonian power law fluid. Numerical results are obtained for the effect of power law temperature profile and fluid index on the heat transfer characteristics.

1. Introduction

Nield and Bejan [1], Ingham and Pop [2], Vafai [3] provide an extensive study on the practical importance and applications of thermal convection in porous media. Of late a number of problems in free convection in the presence of internal heat generation source have been investigated [4–9]. The effect of internal heat generation finds its applications in reactor safety analysis, metal waste form development for spent nuclear fuel, fire and combustion studies, and storage of radioactive materials.

Gorla and Kumari [10] give similarity solutions for free convections in non-Newtonian fluids along horizontal plate in the absence of internal heat generation whereas Postelnicu and Pop [8] have studied the problem of free convection over horizontal and vertical surfaces with internal heat generation for Newtonian fluids. In this paper we study the effect of variable temperature profile and fluid index on the velocity and temperature profile in the presence of internal heat generation for a horizontal plate embedded in a porous medium saturated with non-Newtonian fluid. Similarity solutions are obtained for exponentially decaying heat generation term [8] and the resulting system of differential equations is solved numerically.

2. Mathematical formulation

Equations governing the problem of free convection boundary layer from a heated horizontal surface embedded in a saturated porous medium with non-Newtonian fluid are written as [8]

$$\frac{\partial u}{\partial x}+\frac{\partial v}{\partial y}=0 \tag{1}$$

$$\frac{\partial (u^n)}{\partial y}=-\frac{gK^*(n)\beta}{\nu^*}\frac{\partial T}{\partial x} \tag{2}$$

$$u\frac{\partial T}{\partial x}+v\frac{\partial T}{\partial y}=\alpha_m\frac{\partial^2 T}{\partial y^2}+\frac{q_w}{\rho c_{pf}} \tag{3}$$

where the x – coordinate and the y – coordinate are measured along the plate and normal to the plate. The power law fluid index n for various fluids is as follows:

(i) $n<1$ for pseudo plastic fluids or shear-thinning fluids that have a lower apparent viscosity at higher shear rates.
(ii) $n=1$ for Newtonian fluids where the shear stress is directly proportional to the shear rate.
(iii) $n>1$ for dilatant fluids or shear-thickening fluids for which there is an increase in the apparent viscosity at higher shear rates.

The modified permeability $K^*(n)$ is defined as

$$K^*(n)=\begin{cases}\dfrac{6}{25}\left(\dfrac{n\varepsilon}{3n+1}\right)^n\left(\dfrac{\varepsilon d}{3(1-\varepsilon)}\right)^{(n+1)} & \text{by Christopher and Middleman [11]}\\[2ex] \dfrac{2}{\varepsilon}\left(\dfrac{d\varepsilon^2}{8(1-\varepsilon)}\right)^{(n+1)}\dfrac{(6n+1)}{(10n-3)}\left(\dfrac{16}{75}\right)^{\frac{3(10n-3)}{10n+11}} & \text{by Dharmadhikari and Kale [12]}\end{cases}$$

where d is the diameter of the particle and ε is the porosity of the medium.

The appropriate boundary conditions associated with Eqs. (1)–(3) are

$$v=0,\quad T=T_\infty+Ax^\lambda \qquad \text{at } y=0 \text{ for } x\geq 0 \tag{4}$$

$$u\to 0,\quad T\to T_\infty \qquad \text{as } y\to\infty \tag{5}$$

where A and λ are positive constants.

☆ Communicated by A.R. Balakrishnan and T. Basak.

* Corresponding author at: B3/68, Janakpuri, New Delhi – 110058, India.
E-mail address: shobhabagai@gmail.com (S. Bagai).

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AMERICAN SCIENTIFIC PUBLISHERS

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(www.aspbs.com/jon)

ARTICLE

Buoyancy Induced Flow Past a Non-Isothermal Arbitrary Shaped Axisymmetric Body Immersed in a Non-Newtonian Porous Medium Saturated by a Nanofluid

Shobha Bagai[1,*] and Chandrashekhar Nishad[2]

[1]*Cluster Innovation Centre, University of Delhi, New Delhi, India*
[2]*Department of Mathematics, University of Delhi, New Delhi, India*

A similarity solution is proposed for free convection boundary layer flow over a non-isothermal axisymmetric body embedded in a porous medium saturated by a non-Newtonian nanofluid. The model used for a nanofluid incorporates the pertinent parameters such as buoyancy ratio parameter *Nr*, Brownian motion parameter *Nb*, thermophores is parameter *Nt* and Lewis number *Le*. The effect of temperature dependent viscosity on heat transfer rate is investigated in the study. The linearized version of Arrhenius law for the temperature dependent viscosity is considered.

KEYWORDS: Nanofluid, Non-Isothermal, Non-Newtonian, Porous Medium.

1. INTRODUCTION

Free convection heat transfer is an important phenomenon in engineering system due to its wide applications in electronics cooling, heat exchangers, transport processes in chemical industry, storage of nuclear waste material, food processing and discovery of the flow of oil in petroleum industry. Because of its immense practical applications, a number of studies have been reported for problems arising in porous medium. Most of the earlier studies in free convection associated with porous medium considered the saturated fluid to be Newtonian. One of the first works reported was presented by Cheng and Minkowycz.[1] They presented a similarity solution for natural convection along a vertical plate embedded in a porous medium saturated by Darcy fluid. Few paid attention to the natural convection in non-Newtonian fluidthat exhibit non-linear behavior different from Newtonian fluid. Chen and Chen[2] were first to study the natural convection in a porous medium saturated with non-Newtonian fluid.

In recent years nanofluids have attracted interest from the researchers due to their enhanced thermal properties and interdisciplinary nature. Nanofluids, a term coined by Choi,[3] are composed of nanoparticles with size in the range of 1–100 nm suspended in liquid. Masuda et al.[4] reported the earliest investigation of thermal conductivity enhancement in liquid dispersions of nanoparticles. The abnormal enhancement in convective heat transfer due to nanofluid was explained by Buongiorno.[5] A combined experimental and theoretical study on the effective thermal conductivity and viscosity of nanofluids was explored by Murshed et al.[6] Cheng[7] studied the natural convection boundary layer flow over a truncated cone embedded in a porous medium saturated by a nanofluid with constant wall temperature and nanoparticle volume fraction. Nield and Kuznetsov[8] gave an analytical study of the onset of convection in a horizontal layer of a porous medium saturated by a nanofluid. Their model incorporated the effect of Brownian motion and thermophoresis. They also studied the Cheng-Minkowycz problem[9] of natural convection past a vertical plate in a porous medium saturated with nanofluid. Hady, Ibrahim, Abdel-Gaied and Eid[10] gave similarity solutions for the non-Newtonian flow over an isothermal vertical plate in porous medium saturated with nanofluid. They also explored the effect of yield stress on free convective boundary layer flow of a non-Newtonian nanofluid past a vertical plate embedded in a porous medium.[11] The problem of natural convective boundary layer flow over a horizontal plate embedded in porous medium saturated with a nanofluid was investigated by Gorla and Chamkha.[12] Recently Khan et al.[13] investigated numerically free convection along a vertical plate immersed in a porous medium saturated with non-Newtonian nanofluid. The problem of steady, laminar,

*Author to whom correspondence should be addressed.
Email: shobhabagai@gmail.com
Received: 19 April 2014
Accepted: 8 May 2014

SIMILARITY SOLUTION TO STUDY THE EFFECT OF VARIABLE VISCOSITY ON NON-NEWTONIAN BUOYANCY INDUCED FLOW OVER AN AXISYMMETRIC BODY IMMERSED IN A POROUS MEDIUM SATURATED BY A NANOFLUID

SHOBHA BAGAI

Cluster Innovation Centre, University of Delhi, New Delhi, India - 110007
Email: shobhabagai@gmail.com

Abstract— The study presents the effect of temperature dependent viscosity on natural convection heat transfer of nanofluids over an axisymmetric body embedded in a saturated non-Darcy porous medium. Similarity variables are introduced to reduce the governing partial differential equations to a system of highly coupled nonlinear ordinary differential equations. The model incorporates the non-dimensional parameters: buoyancy ratio Nr, Brownian motion parameter Nb, thermophoresis parameter Nt and Lewis number Le. The local wall heat flux distribution is discussed for three geometries, namely vertical flat plate, horizontal cylinder and sphere for pseudo plastic fluids, Newtonian fluid and dilatant fluids

Keywords— Nanofluid, Non-Newtonian, Porous medium, Variable viscosity

I. INTRODUCTION

Nanofluid refers to a liquid containing suspended nanoparticles. The coining of the term 'nanofluid' for such fluids is credited to Choi [1]. Nanofluids property of enhanced thermal conductivity is being currently explored to enhance heat transfer. Masuda, Ebata, Teramae and Hishinuma [2] reported the earliest investigation of thermal conductivity enhancement in liquid dispersions of nanoparticles. Buongiorno [3] gave a detailed explanation of the abnormal convective heat transfer enhancement observed in nanaofluids. The study of convective heat transfer over bodies embedded in porous media has gained attention in the last few years. Nield and Kuznetsov [4] gave an analytical study of the onset of convection in a horizontal layer of a porous medium saturated by a nanofluid. Their model incorporated the effect of Brownian motion and thermophoresis. They also studied the Cheng-Minkowycz problem [5] of natural convection past a vertical plate in a porous medium saturated with nanofluid. Darcy model was employed for the porous medium. Hady, Ibrahim, Abdel-Gaied and Eid [6] gave similarity solutions for the non-Newtonian flow over an isothermal vertical plate in porous medium saturated with nanofluid. The problem of natural convective boundary layer flow over a horizontal plate embedded in porous medium saturated with a nanofluid was investigated by Gorla and Chamkha [7]. More recently they also studied the problem of natural convective boundary layer flow over a non-isothermal vertical plate embedded in a porous medium saturated with a nanofluid [8]. The problem with prescribed heat flux was investigated by Noghrehabadi, Behseresht and Ghalambaz [9]. The problem of steady, laminar, mixed convection flow of a non-Newtonian fluid past a vertical flat plate embedded in a porous medium saturated with a nanofluid was considered by Rashad, Chamkha and Abdou [10]. Bhaduria, Agarwal and Kumar[11] investigated the problem of linear and non-linear thermal instability in a horizontal porous medium saturated by nanofluid. The Darcy-Forchheimer model was used by Udin and Harmand[12] to investigate the unsteady natural convection heat transfer of nanofluid along a vertical plate embedded in a porous medium. Apart from the vertical and horizontal geometry, Hady, Ibrahim, Abdel-Gaied and Eid presented the problem of boundary layer flow in a porous medium of a nanofluid past a vertical cone [13]. In all the work cited above it is assumed that the viscosity of the fluid is constant. But, the viscosity of most of the fluids generally decreases with an increase in the temperature. To incorporate this effect it is assumed the viscosity decreases exponentially with the temperature. Moreover, this study also aims to explore the effect of viscosity on non-Newtonian buoyancy induced flow past an arbitrary shaped axisymmetric body immersed in a nanofluid saturated porous medium. The effect of viscosity on heat flux for vertical flat plate, horizontal cylinder and sphere is discussed.

REACHING TO THE UNREACHED: POPULARIZING MATHEMATICS THROUGH COMMUNITY RADIO SERIES

[1]JYOTI SHARMA, [2]SHOBHA BAGAI

Cluster Innovation Centre, University of Delhi
Email: jyotisharma222@hotmail.com, shobhabagai@gmail.com

Abstract— Mathematics education is an area of concern in India as many students do not find mathematics interesting whereas many develop a psychological phobia towards the subject. Many students drop mathematics after grade X as mathematics is optional after grade X. Adults who had left mathematics after grade X continue to live with the same phobia for mathematics. The paper presents the highlights of a unique efforts introduced by students of Master of Mathematics Education program at Cluster Innovation Centre, University of Delhi. Students of semester I. They introduced an on-line community radio series, titled, "Popularizing mathematics among masses" through the most humble medium of communication, namely, community radio. It was an outreach program to make mathematics more eloquent and interesting for common people through the Community Radio Station. The paper also reflects on the need of more such programs in a diverse and developing country like India where multiple uses of resources through multi-media technology is the need of the hour.

Keywords— Community radio, Masses, Meta University

I. INTRODUCTION

Mathematics education is an area of concern in India as many students do not find mathematics interesting whereas many develop a psychological phobia for the subject. Many students drop mathematics after grade X as mathematics is optional after grade X. Adults who had left mathematics after grade X continue to live with the same phobia for mathematics. Mathematics is still considered to be a subject of prestige rather than a subject of necessity. Only few enjoy the status of being "good" in mathematics, other just struggle to pass the subject for the mandatory years. All major educational policies, position papers and reform documents (NCF, 2005; NKC, 2009) have again and again recommended considering mathematics a subject of national interest and a vehicle of national development (NPE, 1986). There are considerable concerns at the highest level in the educational setup to raise the standards of mathematics education and education in general. There are strong recommendations to change the way mathematics is being taught in the schools. (NCF, 2005; NKC, 2009; NCFTE,2010). Mathematics is essentially a subject of everyday needs. It is amongst the best tools to develop skills of logic, problem solving and analysis. It is therefore emphasized to teach mathematics to all students at least till grade X (NPE, 1986; NCF, 2000; NCF, 2005). It placed a great responsibility on mathematics teachers to present and teach the subject in such a way that students start connecting their everyday experiences mathematically. It requires a paradigm shift in the way mathematics is being taught in school. School mathematics as envisioned by NCF (2005) demands meaningful mathematics for all students with a scope of challenging mathematics for those who have a higher appetite for the subject.

II. CHANGING PARADIGMS

Reacting to the concerns in mathematics education and exploring the possibilities in higher education, two premium Indian universities came together to conceptualize the idea of a Meta-University and brought it to reality. In the year 2012, University of Delhi and Jamila Millia Islamia joined hands to merge institutional boundaries to expand the scope of higher education in the country. Though the concept of Meta University is not new to the world, in India it is the first of its kind. Within the scope of the Meta University, India introduced the founder course in mathematics education. It is a new beginning in the area of higher education and in the field of mathematics education in India. The Master of Mathematics Education Course (MME) is a unique course of its kind under the concept of Meta University, the idea propagated by National Knowledge Commission to expand the conceptual framework of universities beyond institutional boundaries. The MME course received its' vision from the academic reforms seeded by National Knowledge Commission and also proposed by the University Grant Commission's guidelines on Choice Based Credit System (CBCS), and flexibility in Curriculum Development. Raising the voice on strengthening the quality of education to transform India as a knowledge society, the National Knowledge Commission stressed investing in school education by preparing teachers who can meet this challenge.

The present course, Master of Mathematics Education has tried to embrace possible suggestions given by

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Effect of temperature dependent viscosity on natural convective boundary layer flow over a horizontal plate embedded in a nanofluid saturated porous medium

Shoba Bagai
University of Delhi

Chandrashekhar Nishad
University of Delhi

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ARTICLE

Effect of Variable Viscosity and Permeability on Natural Convective Heat Transfer Across a Vertical Cone Embedded in a Porous Medium Saturated with Nanofluid

Shobha Bagai[1,*] and Chandrashekhar Nishad[2]

[1] *Cluster Innovation Centre, University of Delhi, New Delhi, India*
[2] *Department of Mathematics, University of Delhi, New Delhi, India*

This work is focused on the study of natural convection boundary layer flow over a non-isothermal vertical cone in a porous medium saturated with non-Newtonian nanofluid in the presence of internal heat generation with constant wall nanoparticle volume fraction. The analysis shows that the temperature and nanoparticle volume fraction profiles in the respective boundary layers depend upon the parameters such as buoyancy ratio *Nr*, Brownian motion *Nb*, thermophoresis *Nt*, Lewis number *Le*, permeability parameter *d* and viscosity parameter γ. We study the linearized version of the Arrhenius law for temperature dependent viscosity on heat transfer rates in the presence of internal heat generation. The analysis also incorporates the variation of permeability of the porous medium. It is found that the heat transfer and nanoparticle volume fraction rate decreases as viscosity increases and permeability decreases.

KEYWORDS: Internal Heat Generation, Nanofluid, Variable Permeability, Temperature Dependent Viscosity, Vertical Cone.

1. INTRODUCTION

The applications of nanofluids range from areas such as heat transfer–industrial cooling, nuclear reactors, extraction of geothermal power; automative applications–nanofluid coolant, nanofluids in fuel and other vehicular nanofluids; electronics–microreactors, cooling of microchips; biomedical–nano drug delivery, cancer therapeutics, cryopreservation, nanocryosurgery, sensing and imaging.[1] Nanofluids are produced by suspending solid phase nanoparticles, metallic or non-metallic particles with sizes 1–100 nm in a base fluid lije oil or water. As compared to the base fluids, nanofluids possess enhanced thermophysical properties like thermal conductivity and diffusivity, viscosity and convective heat transfer coefficient.

The coining of the term "nanofluid" is credited to Choi.[2] The thermal conductivity enhancement of the nanofluids was observed by Masuda et al.[3] Buongiorno[4] gave a detailed explanation for the abnormal increase of thermal conductivity and viscosity. He also focused on heat transfer enhancement in convective situation in nanofluids. There are two approaches that are being followed in literature–one proposed by Tiwari and Das[5] and other by Buongiorno.[4] Buongiorno proposed a model incorporating the effects of Brownian diffusion and the thermophoresis which we shall employ in this paper. Abu-Nada et al.[6] presented heat transfer enhancement in a differentially heated enclosure using variable thermal conductivity and viscosity of nanofluid. Experimental and theoretical study on the effective thermal conductivity and viscosity of nanofluids was given by Murshed et al.[7] and he also found that both the thermal conductivity and viscosity of nanofluids increases with the nanoparticle volume fraction.

The study of nanoparticles has also been extended to various geometry. Chamkha et al.[8] presented the non-similar solutions for natural convective boundary layer flow over a sphere embedded in a porous medium saturated with a nanofluid. Cheng[9] worked the natural convection boundary layer flow over a truncated cone embedded in a porous medium saturated by nanofluid. Chamkha and Rashad[10] studied steady, laminar and natural convection boundary layer flow over a permeable vertical cone embedded in a nanofluid saturated porous medium with uniform lateral mass flux. Noghrehabadi et al.[11] investigated non-Darcy flow and natural convection over a vertical cone embedded in a nanofluid porous medium

*Author to whom correspondence should be addressed
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Analysis of transport system in a semi-urban village: A case study of Jagatpur Village, Delhi, India

Puneet Kumar, Shobha Bagai
puneet.cic@gmail.com, shobhabagai@gmail.com[1]
Cluster Innovation Centre (CIC), University of Delhi, Delhi-110007, India

ABSTRACT

"Jagatpur" is a resettled semi-urban village adjoining "Jharoda" village near Burari by- pass in Delhi, India. The village has many problems that need attention. The village is isolated from other important places due to lack of any systematic transport means. Earlier it had a proper public transport system but due to encroachment of the area near the chowk from where the DTC buses take a turn and lack of proper planning, the transport has become a very big problem in this village.

The aim of this study is to find a solution to the problem and come up with a proposal for an efficient public transport system in the village which is eco-friendly, economical and convenient to the villagers. Some important roads and vacant space inside and outside of the village were analyzed and measured, so that possible routes that could connect the village to the main roads and the nearest Metro Station could be suggested. In this study, the authors also propose a sustained route plan of DTC bus (with timings) and Gramin sewa for the most preferred route by villagers that was obtained by survey.

Keywords: *chowk*, *gali*, *semi-urban village*, *steering angle*, *transport*, *turning radius*

INTRODUCTION

Jagatpur is a semi-urban village with a population of thousands. Before 1952, Jagatpur village was situated at the Yamuna bank and it got submerged due to flood. At that time, the representative of the executive council established a multipurpose cooperative society that resettled the village to the current place. At the time of resettlement, a well-organized plan/map was laid out for the village. The village is mapped in such a way that, it has 9 lanes that are connected to a ***chowk***[2] in the village. In this plan the area surrounding near the chowk (16 plots) was divided into 4 equal parts in which, place for girls school and 2 seed stores were allocated. The yellow

[1] Corresponding Author
[2] *Chowk:* A small intersection of roads

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A Graph Based Ranking Strategy for Automated Text Summarization

Nitin Agrawal,Shikhar Sharma, Prashant Sinha, Shobha Bagai
nitin.cic@gmail.com , shikharcic23@gmail.com, prashantsinha94@gmail.com, shobhabagai@gmail.com
Cluster Innovation Centre, University of Delhi, Delhi, Delhi 110007

ABSTRACT

Text summarization is a process of capturing the idea and line of thought from an original text and inculcating the same into a short coherent text. Automated text summarization aims to meet this objective of retaining all the key ideas instilled in the text while skipping upon the redundant and repetitive bits of information. The reduced text thus compiled must be coherent in itself in order to meet the semantic and syntactic organization of the language. This work presents an extraction based automatic text summarization algorithm. The methodology proposed involves constructing of a directed weighted graph out of the original text wherein each sentences is taken to be a node. The weights for each of the edges are determined by using a suitable distortion measure which analyses the semantic relation between the two adjacent nodes / sentences. A ranking algorithm is used to compute the most important sentences in the text and that should be present in the summary based on the weighted graph. This technique has been employed on multiple data sets and has performed well on the evaluation parameters laid down for such applications.

Keywords: Graph, text-rank, automated summarizer, distortion, extraction

INTRODUCTION

Automatic text summarization (ATS) is a process that enables a computer to summarize data/ information automatically. With massive growth in information, summarization has become more important for enlisting significant parts of a big corpus. It provides a non-redundant bits of information from an original article. The amount of information available today is tremendous and the problem of finding the relevant pieces and making sense of these is becoming more and more essential. Nowadays, a great deal of information comes from the Internet in a textual form. Text Summarization helps in various kinds of analysis and forms a base for different Natural Language Processing Algorithms. ATS has a wide range of applications such as summarization of news articles, search engines presenting summarized results, language translation, email thread summarization etc. Text Summarization is broadly divided into two categories. The first category is text abstraction which involves parsing the text on semantic grounds followed by a formal representation. This is followed by re-interpretation of the text into a different non-redundant segment which in turn is the summarized version of the original text. The second category is text

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Fast & Dynamic Image Restoration using Laplace equation Based Image Inpainting

Nitin Agrawal, Prashant Sinha, Avnish Kumar, Shobha Bagai

shobhabagai@gmail.com
Cluster Innovation Centre, University of Delhi, Delhi 110007

ABSTRACT

Images tend to degenerate over time and are exposed to noises. These noises don't only affect the visual outlook but also hampers the allied significance to these images. Different techniques are being put to use for de-noising such images. Image in-painting is one such phenomenon of de-noising the images that involves approximating the de-noised form of the image. The current study aims at developing an in-painting system for restoration of lost art, reconstruction of destroyed images and removal of unnecessary objects. The motivation for the same has been driven from Partial differential equation based anisotropic diffusion model or image in-painting .The steady state heat equation or the Laplace equation has been used to model and approximate the de-noised data for noised region of the image. The Laplace equation has been used clubbed with the Dirichlet boundary conditions in order to fill in the degenerated or the noised region. The Dirichlet conditions provides a firm starting point for approximating the structural framework of the noised region in order to remove the inconsistencies using the colour intensities of the neighboring pixels as the boundary conditions. The colour intensities are modeled to be diffusive in nature. The experiments conducted using the proposed approach portray significant speedups and presents a practicable in-painting strategy.

Keywords**:** De-noising, Laplace Equation, Image Restoration, Inpainting, Partial Differential Equations.

INTRODUCTION

Partial differential equations are often used to model most of the basic theories underlying physics and engineering. We are enabled to simulate various phenomena comprising a whole range of domains viz-a-viz electronics, image processing, etc. We will be dealing with the Laplace equations in this paper as part of the strategy to achieve image inpainting. Inpainting is the digital art of reconstructing old images by filling up the missing portions in a legible and unified manner. The

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Extension of the Josephus Problem with Varying Elimination Steps

Shivam Sharma, Raghavendra Tripathi, Shobha Bagai, Rajat Saini, Natasha Sharma

shobhabagai@gmail.com, Cluster Innovation Center, University of Delhi, Rugby Sevens Building, University Stadium, G.C. Narang-Marg, New Delhi, India

ABSTRACT

This paper is an effort of expounding the recursive formula for the Josephus problem (which is the essence of the popular game "Akkad Bakad Bambai Bo" played in Indian households). The academic extension of this game has been to deal with the cases where elimination steps vary with each turn. Josephus problem is essentially heralded with objective of finding the position of the player who survives the game. Most of the available literature deals with the problem of finding the survival's position when sequential elimination of persons takes place in k steps for n circled people. There is a simple algorithm known to solve this problem; however the rigorous procedure can be replaced with a formula. The nature of this formula can be either recursive or non-recursive; both of which comprise this paper. We have extended the problem to the situation wherein the elimination step k varies with iterations.

The non-recursive methods include the binary method & paper [4] contains non-recursive formula for constant elimination step $k = 2$ and the recursive formula has been derived using dynamic recursive methods. This dynamic recursive formula can be modified to withstand different extensions of Josephus problem; making it all-inclusive. This work shows the modifications made in the dynamic recursive formula to predict the survival's positions for varying elimination step k. We have explained the dynamic recursive formula for steps k changing as the count does (1,2,3,4 ...) and steps changing as multiples of a number ($u \in N$, $k = u, 2u, 3u, ...$). A simulation game for various facets of the Josephus problem have also been programmed using the software "*MATLAB*" which provides options to select various step sequences and to view the actual elimination process in the output table.

Keywords: Dynamic recursive method, Extended Josephus problem, Josephus Problem, Josephus Problem MATLAB Game and Akkad Bakad Bambai Bo, Recursive Formula.

INTRODUCTION

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BUOYANCY INDUCED FLOW PAST A NON-ISOTHERMAL AXISYMMETRIC BODY IMMERSED IN A POROUS MEDIUM OF VARYING PERMEABILITY SATURATED BY NON-NEWTONIAN NANOFLUIDS

Shobha Bagai *, Chandrashekhar Nishad †

† *Department of Mathematics, University of Delhi, New Delhi, 110007, India*

***Corresponding author:**

SHOBHA BAGAI
Cluster Innovation Centre
University of Delhi
New Delhi, 110007, India
shobhabagai@gmail.com

ABSTRACT:

The analysis is carried out for free convection boundary layer over an axisymmetric body embedded in a porous media filled with non-Newtonian fluid incorporating the variation in permeability. An exponentially decaying model is assumed for permeability whereas the well-known power law model is assumed for the non-Newtonian fluid. It is further assumed that the internal heat generation decays exponentially. Similarity solutions are obtained, for variable wall temperature and the similarity equations obtained are solved numerically.

Key words:
Convective heat transfer, Variable wall temperature, Variable permeability, similarity solutions.

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A Mathematical Model for the Effect of Earthquake on High Rise Buildings of Different Shapes

Shobha Bagai*, Parul Madaan, Tarun Khajuria
Cluster Innovation Centre, University of Delhi, Delhi
shobhabagai@gmail.com

ABSTRACT

The paper explores the effects of mechanical vibrations of multi-storey buildings. The vibrations are induced by earthquake. The aim of the paper is to apply the theoretical knowledge of differential equations to study the effect of earthquake on multi-storeyed buildings. The main aim of this paper is to study and deduce the stability of buildings with different dimensions and shapes during an earthquake. The study involves a system of differential equations that are solved by applying the method of eigenvalues and eigenvectors. The effect of Coulomb damping is also incorporated in the equations.

Keywords: System of differential equations; Mathematical modeling; Earthquake; Multi-storeyed building; Coulomb damping

INTRODUCTION

As seismic waves move through the ground, the ground also moves at its natural frequency. During an earthquake if the frequency with which the building sways, matches with building's natural frequency, i.e. when the frequency contents of the ground motion are centered around the building's natural frequency, we say that the building and the ground motion are in resonance with one another. Resonance tends to increase or amplify the building's response. Because of this, buildings suffer the greatest damage from ground motion at a frequency close or equal to their own natural frequency.Although the phenomenon of resonance can be extremely damaging, its effects can be reduced. In designing seismically safe buildings, an architect or engineer must be concerned with "tuning" a building so that the tendency for its own vibration to be amplified by resonance is reduced or eliminated. There come hundreds of small earthquakes around the world every day. Some of them are so minor that we, humans cannot even feel them, but seismographs and other sensitive machines can record them. However, some of them result in great devastation, taking the life of thousands of people, and destroying the properties of billions. Today, it has become imperative that structures should be designed to resist earthquake forces, in order to reduce the loss of life. The science of Earthquake Engineering and Structural Design has improved tremendously. Architects around the world are trying their best to design safe structures that can withstand earthquakes of reasonable magnitude.

A common misconception is that a taller building will face more damage than a shorter building. The Mexico City earthquake of September 19, 1985 provides a striking illustration to contradict this. A majority of the buildings that collapsed during this earthquake were around twenty storey tall. These twenty storey buildings were in resonance with the frequency contents of the 1985 earthquake. Other buildings, of different heights (some greater than twenty storeys) and

Shobha Bagai

Professor, Cluster Innovation Centre, University of Delhi

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UNIVERSITY OF DELHI
DELHI – 110007

Ref. No.Exam.Br.-IV/Ph.D./Result/2017/15

The following candidates, consequent upon evaluation of their theses submitted for the degree of Doctor of Philosophy (Ph.D.) on the topic as mentioned against their names and after *viva-voce* examination, have been found qualified for the Degree of Doctor of Philosophy (Ph.D.) of this University:

Sl. No.	Enrol. No.	Name	Title of the Thesis
Faculty of Arts (Department of Hindi)			
141 (9803)	KM-341/98	**Awanish Mishra**	"बीसवीं सदी के अन्तिम दशक में सामाजिक-आर्थिक परिवर्तन का हिन्दी उपन्यासों की भाषा एवं रूप पर प्रभाव"
142 (9812)	DB-448/1999	**Ram Ji Lal**	"हिन्दी भक्ति साहित्य में अस्मितामूलक चेतना"
Faculty of Mathematical Sciences (Department of Mathematics)			
143 (9666)	Ph.D.-84/09	**Chandrashekhar Nishad**	"Similarity Solutions for Convective Heat Transfer Non-Newtonian Flows in Porous Medium Saturated with Nanofluids"
Faculty of Management Studies			
144 (9855)	C-1/95	**Mukta Bansal (W)**	"A Study of Relational Practices in Selected Indian Business Organizations"
Faculty of Commerce and Business (Department of Financial Studies)			
145 (9798)	HR-1022/04	**Tarunika Jain Agrawal (W)**	"Interaction Between Credit Risk and Market Risk in the Indian Banking Industry: An Empirical Study"
Faculty of Science (Department of Chemistry)			
146 (2641)	H-351/06	**Kirit Kansal (W)**	"Study of Anti-Corrosive Properties of Some Quinoxalines for Mild Steel Corrosion in Sulphuric Acid"
147 (2564)	MLN-713/05	**Chiranjeev Sharma alias Chiranjeev Sharma Neupane**	"Synthetic, Spectroscopic, Crystallographic and Thermal Studies of Antimalarial Peroxides"

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Faculty of Science (Department of Physics & Astrophysics)			
148 (2595)	MH-875/06	**Jyoti (W)**	"Growth of Piezoelectric Non-Linear Optical Organic/Semi Organic Single Crystals and their Structural, Optical, Thermal and Dielectric Characterizations"
149 (2574)	KH-603/05	**Aman Rohilla**	"Lifetime Measurements Probing Nuclear Structure Issues at High Spins in ^{167}Lu and ^{188}Pt"
(Department of Zoology)			
150 (2762)	MH-276/05	**Alivia Roy (W)**	"RNA-Seq analysis of testis during different reproductive phase in spotted snakehead Channa punctatus: Expression analysis of jag1, notch1, kpna2, sstr2, klhl10, gria1, arnt2, foxj1, plzf and lhx8 along the testicular cycle and under the effect of human chorionic gonadotropin"
151 (2645)	KM-151/04	**Khangembam Cherita Devi (W)**	"Study of Ammonia Oxidizing Archaea and Bacteria in Recirculating Aquaculture System: Their Composition, Activity and Abundance of amoA Gene"
152 (2334)	Ph.D.-41/11	**Nitisha Shrivastava (W)**	"Repurposing of Pharmacopoeia for Identifying Novel Radioprotectors Using Zebrafish as Organism Model"
(Department of Home Science)			
153 (2635)	Ph.D.-37/12	**Noopur Sonee (W)**	"Development of Suitable Work-Wear Fabrics for Workers of Oil and Gas Industry"

21/4/17

(Deepak Vats)
Joint Registrar (Exam)
Delhi, the 21st April, 2017

(Dr. Satish Kumar)
O.S.D. (Examination)

21/4/17

(Prof. Vinay Gupta)
Dean (Examination)

Journal of
Indian Education

Gifted Disadvantage in Education Safety Net: a Reality Check

JYOTI SHARMA*

Abstract

Although the notion of giftedness is a reality, yet it swings along the pendulum of equality and excellence. At times, nurturance of gifted abilities becomes a struggle of better catchment of resources and facilities. Those from affluent set-ups are blessed with better support system whereas gifted children from disadvantaged group suffer from submissive upbringing. In developing countries like, India, with diverse demographic profiles, socio-cultural diversity and economic disparity, the very concept of equality in education faces severe challenge. The present paper presents the dichotomy of ideology of equality and excellence in education practices. It highlights the need of wider vision, better policy making and decentralised implementation services to allow gifted children to enjoy what they are; dream what they can be; and promote what they will be.

A day in Garima's life.....

Garima is a seventh grade student in a Government School. Her father is a clerk; mother is a homemaker with four children to look after. Garima gets up at 5 0'clock in the morning, helps her younger siblings to get ready for school, combs their hair, ties up their shoes, checks their school bags, helps her mother to pack the lunch for herself and her siblings, fills the water bottles, clears the room and rushes for school.

In school, Garima is a high achiever, and easily understands everything being taught. She mostly helps the teacher to assist the slow peer of her class. She enjoys every minute of her school time. She tries to finish most of her homework in school itself so that she can learn playing the *guitar*, her music teacher has gifted her seeing her music abilities.

Once back home, Garima eats her lunch, takes rest for half an hour and

* Department of Education, Shyama Prasad Mukherji College, University of Delhi-110026

No.: Prn.SA/ADV/Gifted-VB/2014/(G)

Government of India
Office of the Principal Scientific Adviser
to the Government of India
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311, Vigyan Bhawan Annexe,
Maulana Azad Road,
New Delhi -110011.
Dated 23rd July, 2015

To

The Pay and Accounts Officer,
Department of Science and Technology,
Technology Bhawan,
New Mehrauli Road,
New Delhi – 110 016.

Sub:- **Financial assistance for the project titled "Identification and Mentoring of Potentially Gifted Children in Science and Mathematics: Validating DIMP (Developmental Identification and Mentoring Package) model in collaboration with Vigyan (Vijnana) Bharati"- Regarding.**

Sir/Madam,

In continuation of this office letter of even no. dated 30th April, 2014 sanctioning the above project at a total cost of ₹ 22,74,000/-, I am directed to convey the sanction of the President to the project titled **"Identification and Mentoring of Potentially Gifted Children in Science and Mathematics: Validating DIMP (Developmental identification and mentoring package) model in Collaboration with Vigyan (Vijnana) Bharati"** at a revised total cost of **₹ 23,70,000/-** *(Rupees Twenty three lakh seventy thousand only)* for a duration of 10 months, i.e. till October, 2015. The items of expenditure for which total allocation of **₹ 23,70,000/-** have been approved are given below: -

Sl. No	Item	Total up to October 2015
A-1).	***Recurring***	
1a	Project Assistant @ **4 nos.** @ ₹ 12,000/pmx4x5 months **(Old scale): May-Sept 2014**	₹ 2,40,000/-
1b	Project Assistant @ **4 nos.** ₹ 24000x4x 5 months **(Revised scale)-Oct. 14 -Feb 2015**	₹ 4,80,000/-
	Salaries Sub-total 1a&1b	₹ 7,20,000/-
2.	Field Work/Travel(~4 visits per center)	₹ 5,00,000/-
3.	SMAT testing - Preparation, Printing and Evaluation at three centres	₹ 5,00,000/-
4.	Teachers workshops ~3 nos.	₹ 2,00,000/-
5	Stationery/Documentation/ Publication	₹ 2,00,000/-
6.	Contingency	₹ 1,00,000/-
	Recurring Sub-total (A-1-6)	**₹ 22,20,000/-**
B-7).	*Non-Recurring:* **Laptops/Tablets**	₹ 1,50,000/-
	Grand Total (A+B)	**₹ 23,70,000/-**

2/-

No.: Prn.SA/ADV/Gifted/Phase-2/2014 (G)

Government of India
Office of the Principal Scientific Adviser
to the Government of India

*****

311, VigyanBhawanAnnexe,
Maulana Azad Road,
New Delhi -110011.
Dated 12th August, 2015

To

The Pay and Accounts Officer,
Department of Science and Technology,
Technology Bhawan,
New Mehrauli Road,
New Delhi – 110 016.

Sub:- Financial assistance for the project titled "Establishing Process Based Identification and Mentoring Practices for Potentially Gifted Children in Science and Mathematics" - Regarding.

Sir/Madam,

In continuation of earlier sanction of even no. dated 18th June, 2014, the sanction of the President is conveyed to revise the total cost of the project from ₹ 1,27,76,800/- to **₹ 1,62,61,600 /- (Rupees One crore sixty two lakh sixty one thousand and six hundred only)** for a duration of **3 years** (*June, 2014-May, 2017).*

2. Therefore, the total cost of the project may now be considered as **₹ 1,62,61,600/-** as against ₹ 1,27,76,800/- and the items of expenditure are as follows:-

Revised Project Budget (June 2014-May 2017)					
Sl. No.	Particulars	Budget (in ₹ lakhs)			
	Recurring (G)	(14-15)	(15-16)	(16-17)	Total
a	*Salaries/wages pm*				
	i) **SRF**-2 no.@18.2K-4 months, & Revised @36.4K-32 months	7.280	8.736	8.736	24.752
	ii) **JRF** -2no@ 15.6K -4 months& Revised @32.5K-32 months	6.448	7.800	7.800	22.048
	iii) **RA**-3no@ 10.4K -4 months& Revised @20.8K-32 months	6.240	7.488	7.488	21.216
	iv) **Field Invest.**-3no@ 2.5K 4 months& Revised @5K-32 months	1.500	1.800	1.800	05.100
	Sub-total (a)	**21.468**	**25.824**	**25.824**	**73.116**
b	**Consumables**: Data analysis/ Documentation	**3.00**	**3.00**	**3.00**	**9.00**
c.	**Travel**				
	Field work	2.00	2.50	3.00	07.50
	PRMC meetings **2nos/yr.**	2.50	3.00	3.50	09.00
	Sub-total (c)	**4.50**	**5.50**	**6.50**	**16.50**
d.	**Other Cost and Contingency**				
	Identification tool kit	4.00	4.00	4.00	12.00
	Teachers' Workshop	2.00	2.00	--	4.00
	Teachers' Conference	--	--	2.50	2.50
	Mentoring	2.00	2.00	2.00	6.00
	Gifted Students congress	--	2.50	2.00	4.50
	Consultation Meetings	3.00	3.00	3.00	9.00
	Resource Material/ Books/Journals/Reports	3.00	3.00	2.00	8.00
	Contingency	1.00	1.00	1.00	3.00
	Sub-total (d)	**15.00**	**17.50**	**16.50**	**49.00**
e.	Institutional Overhead Charges	**2.00**	**3.00**	**3.00**	**8.00**
	Sub Total Recurring(a-e)	**45.968**	**54.824**	**54.824**	**155.616**
f.	**Non- Recurring (C)**				
	Laptop-3., Laptop cum tablet- 1, Desktop 2, Printer 2i- pad/tablet 4, Portable AV System 1,OHP -1	**3.00**	**2.00**	**2.00**	**7.00**
	Grand Total (a-f)	**48.968**	**56.824**	**56.824**	**162.616**

...2/-

UNIVERSITY OF DELHI

PROJECT COMPLETION CERTIFICATE

INNOVATION PROJECTS 2015-16

Implementing Authority	:	University of Delhi
Name of College	:	Cluster Innovation Centre
Code of Project	:	CIC-308
Title of Project	:	Translating "Lilavati of Bhaskara" in the realm of present Mathematics Curriculum
Name of Project Investigators	:	Dr. Jyoti Sharma Dr. Harendra Pal Singh Mr. Anjani Kumar
Amount Sanctioned	:	Rs. 4.50,000/- (Rupees Four Lac Fifty Thousand only)

Certified that the Final Report and Utilization Certificate have been submitted for the Project.

Coordinator, Innovation Desk

Dean Research (PS&MS) | Dean Research (H&SS) | Dean Research (LS)

Received original

Anjani Kumar
02/06/2017

Dean Academic Activities & Projects/
Chairperson, Research Council

Prof. Malashri Lal, Chairperson, (Chairperson)
Prof. Ajay Kumar, Member, Dean Research (PS&MS)
Prof. Pami Dua, Member, Dean Research (H&SS)
Prof. M. M. Chaturvedi, Member, Dean Research (LS)
Dr. Deepika Bhaskar, Dy.Dean Research

Research Council
University Of Delhi

RC/2015/9677

October 15, 2015

Dr. Hamendra Pal Singh
Cluster Innovation Centre
University of Delhi
Delhi-110007

Subject: Research & Development grant 2015-16.

Dear Sir/Madam,

You have been sanctioned the following grant under the Research & Development scheme 2015-16 of the University of Delhi.
The budget heads under which the grant has been sanctioned are as follows:

Budget Heads	Amount (in Rs.)
Contingency	60,000
Consumables/Equipment	2,00,000
Total	**2,60,000**
Total in Words	**Rupees two lakh sixty thousand only**

Kindly note the following:

- The guidelines issued at the time of application and additional guidelines attached have to be strictly followed.
- The sanctioned amount can be used only under the approved budget-heads.
- The grant is sanctioned for a period of one year starting from 15.10.2015.
- A quality publication must be reported along with a copy of the same by the end of the year along with the final report for any further consideration for the grant for next year.
- The support received from the University as R&D grant must be acknowledged in the publication from the research undertaken in the scheme.

The Utilization Certificate along with a final report in the form of a research paper must reach the office of the Research Council by October 30, 2016.

With best wishes for productive research.

Yours sincerely,

Prof. Malashri Lal

Convention Hall Courtyard, Viceregal Lodge University of Delhi, Delhi – 110007,
Phone No. 011-27666227 E-mail: research-council@du.ac.in, researchcouncildu@gmail.com