2006 - 2012

# UTTARAKHAND CHAPTER OF







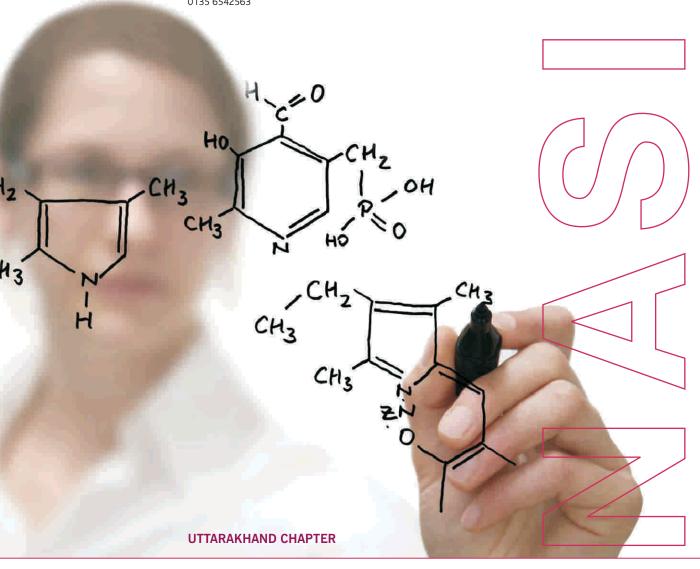
## Edited by

Dr. Rajendra Dobhal, Director General, UCOST Dr. Sarita Khandka, Sr. Sci. O., UCOST

Dr. Kirti Joshi, Project Scientist, UCOST

## Design & Realisation

Xpressions Print & Graphics Pvt Ltd 0135 6542563



Chairman

## Dr. B.R. Arora

F.N.A., F.N.A.Sc. Former Director,

Wadia Institute of Himalayan Geology,

33 Gen. Mahadeo Singh Road, Dehra Dun - 248001. Secretary

## Dr. Rajendra Dobhal

Director General,

Uttarakhand State Council for Science & Technology,

6, Vasant-Vihar, Phase-I, Dehradun - 248006 Advisors

## Prof. A.N. Purohit

F.N.A., F.N.A.A.S., F.N.A.Sc. 'AlmiAnchal', 181/1, Doshalwala, Dehradun - 248001.

## Prof. Y.P.S. Pangtey

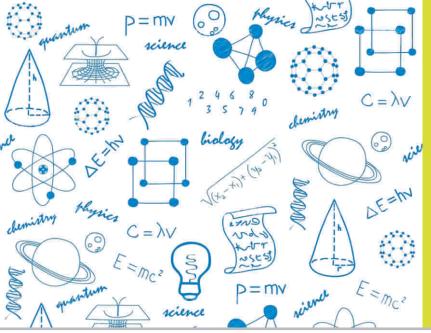
D.Sc., F.N.A.Sc.
Botany Department
DSB Campus
Kumaun University
Nainital - 263002

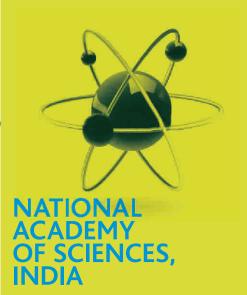
## Prof. Ravi Bhushan

Professor C.Chem F.R.C., F.N.A.Sc. Department of Chemistry, I.I.T. Roorkee, Roorkee - 247667









"We owe a lot to the Indians, who taught us how to count, without which no worthwhile scientific discovery could have been made."

-Albert Einsteir



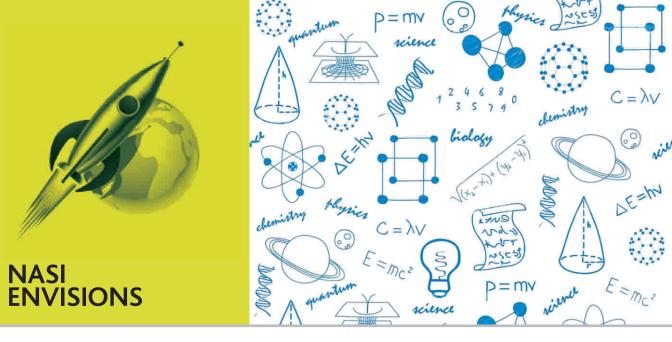
National Academy of Sciences, India founded in the year 1930, is a society registered under the registration of society's act 1860. It is the oldest Science Academy of the country and is located at Allahabad. Over the years, this unique organization has served as a springboard for scientific and technological activities in a wide variety of S&T domains. It has helped India usher in a scientific milieu, in creating and nurturing talent in science and technology.

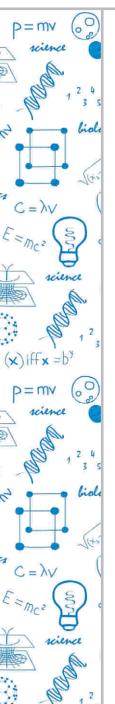
The Academy started with 57 ordinary Members and 19 Fellows but which has now grownmany folds in strength and popularity. Today it has about 1571 Members and 1579 Fellows including 29 Honorary Fellows and 88 Foreign Fellows. All these, include scientists from various disciplines of Science and Technology from all over India and abroad.

The main objective of the Academy was to provide a national forum for the publication of research work carried out by Indian scientists and to provide opportunities for exchange of views among them. The Rules and Regulations of the Academy were based on those of the Royal Society of England and Asiatic Society of Bengal. These have since been revised and updated to meet the emerging challenges. Prof. Meghnad Saha was elected its first President.









## The cultivation and promotion of Science & Technology in all its branches, through -

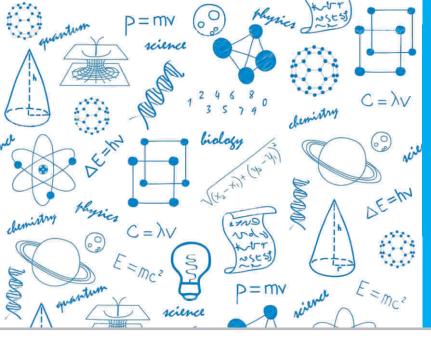
- (a) the cultivation and promotion of SCIENCE AND TECHNOLOGY in all its branches;
- (b) to publish such proceedings, journals, memoirs, transactions and other works as may be considered desirable;
- (c) to organise a Science Library;
- (d) to organise meetings and hold discussions on scientific and technological problems;
- to promote scientific and technological research concerned with the problems of national welfare;
- (f) to undertake, through properly constituted committees and bodies, such scientific work of technological or public importance as it may be called upon to perform;
- (g) to co-operate with other organizations in India and abroad, having similar objects, and to appoint representatives of the Academy to act on national and international bodies;

- (h) to secure and manage funds and endowments for the promotion of science and technology;
- to do and perform all other acts, matters and things that may assist in, conduce to, or be necessary for the fulfillment of the above mentioned aims and objects of the Academy;
- (j) to create an adequate impact of the Academy all over the country, it may open Chapters of the Academy in other cities in the country, where reasonable number of scientists are interested.



State Chapters:
The Academy has 16 Chapters located at Allahabad,
Bangalore, Budelkhand
Extended Region, Chandigarh,
Chennai, Delhi, Hyderabad,
Jammu, Kharagpur, Kolkata,
Lucknow, Mumbai, Patna,
Shillong (N.E. Chapter),
Uttarakhand and Varanasi.







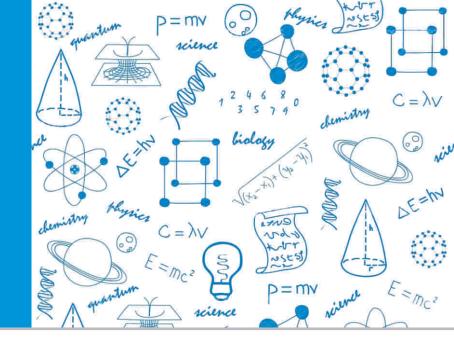
It is the youngest member among the metro chapters. Uttarakhand Chapter came in to being in the last quarter of 2006 with an aim to coordinate the activities of NASI, Allahabad in the newly formed state of Uttarakhand. The Uttarakhand Chapter of NASI, with its founder Chairman, Prof A.N. Purohit was formally inaugurated on October 12, 2006 at

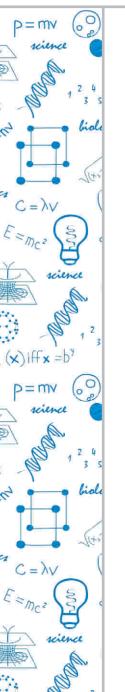
Uttaranchal Institute of Technology, Premnagar, Dehradun by Prof M.G.K. Menon, India's most renowned scientist. Other dignitaries who graced the occasion were Prof. P.N.Tandon, Former Director, AIIMS, Dr. V.P. Sharma, Dr. (Mrs.) Manju Sharma, a large number of scientists and academicians in the state.

In recent years the chapter has

observed change in office bearers with Dr. B.R. Arora, Ex-Director Wadia Institute of Himalayan Geology succeeding Prof. A.N. Purohit, Former Vice Chancellor, HNB Garhwal University as new Chairman of the chapter and Dr. Rajendra Dobhal, Director General Uttarakhand State Council for Science & Technology, Dehradun took over the charge of Secretary, Climbing to the top demands strength, whether it is to the top of Mount Everest or to the top of your career.

Abdul Kalam





UK chapter from Dr. G.S. Rawat, Scientist-G, Wildlife Institute of India, Dehradun on 09 Aug 2011. Meanwhile, Prof. A.N. Purohit is continuing to guide the chapter by being the Advisor of the chapter. Since then the chapter has organized many Science popularization activities.

## **UCOST Affiliation**

The Uttarakhand Chapter of the Academy is affiliated to the Uttarakhand State Council for Science & Technology (UCOST). UCOST has not only provided space for housing the working office of the chapter, it has been the motivating force and provided the guidance, platform and financial support in organizing the activities since the inception of the chapter. This has begun to attract the attention of academicians, intellectuals and society at large. The UK Chapter, in close

collaboration with the UCOST aims at achieving the National Academy's mandate and hopes to achieve the following objectives:

- ) Promote science education in Uttarakhand
- Provide a forum for the fellows and members of the NASI for fruitful interactions in the field of Science & Technology

iii) Act as a link between the leading /renowned national/ international scientists and the science teachers and students in the state of Uttarakhand.

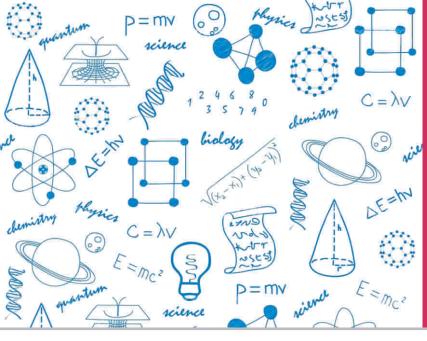
In addition to various activities related to above objectives, the state chapter has instituted the Best Teacher Award of the year to promote science education in the state.

The state of Uttarakhand has 24 Fellows and 45 Members of NASI. The chapter has since its inception has successfully organized various activities of science popularization that includes, Popular Lectures, Workshops and Seminars etc.



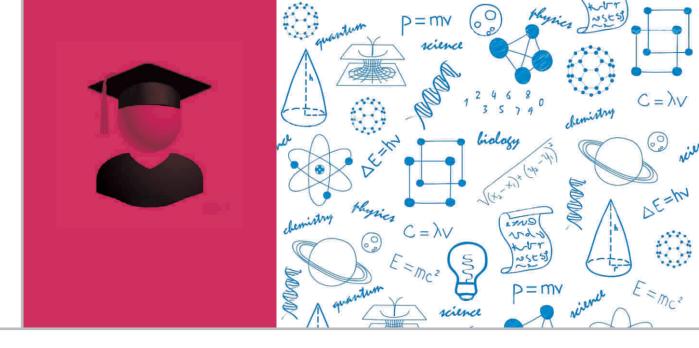
p=mv

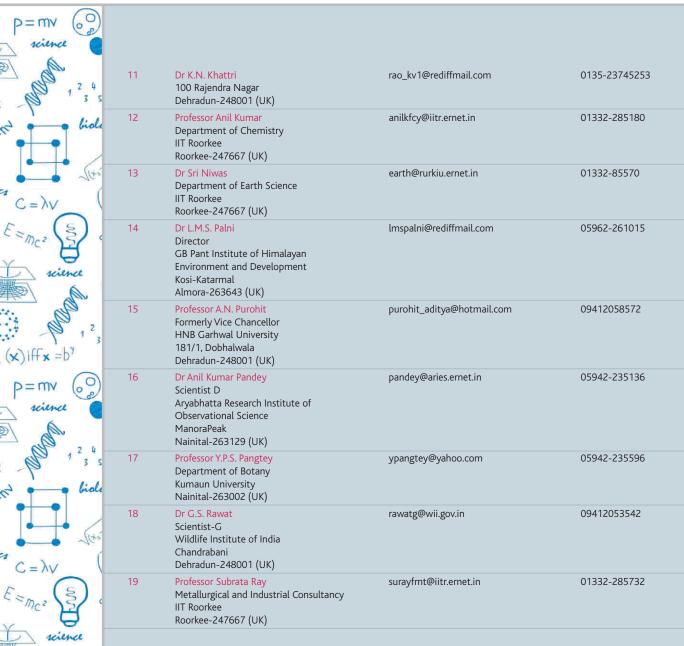
Pers

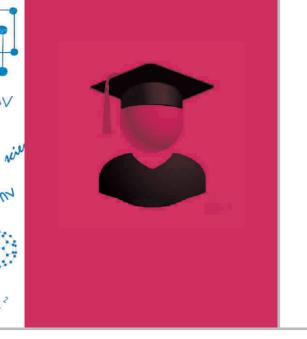




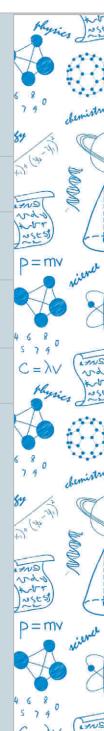
Sl.No.	Name and Address	Email address	Tel. No.	
1	Dr D.P. Agrawal Ashirvad (Pande Lodge) East Pokharkhali Almora-263601 (UK)	abhash_dp@rediffmail.com	05962-33868-	
2	Dr B.R. Arora Scientist Emeritus Wadia Institute of Himalayan Geology 33, GMS Road Dehradun-248001 (UK)	arorabr@wihg.res.in	09897391661	
3	Professor Sunil Bajpai Department of Earth Science IIT Roorkee Roorkee-247667 (UK)	sunilbajpai 2001@yahoo.com	01332-285079	
4	Dr Ravi Bhushan 210/4, SaraswatiKuj IIT Roorkee Roorkee-247667 (UK)	rbushfcy@iitr.ernet.in	02332-285795	
5	Dr H.J. Chowdhery Scientist Emeritus Botanical Survey of India 192-Kaulagarh Road Dehradun-248195 (UK)	hjchowdhery_bsi@yahoo.co.uk	09411587223	
6	Dr R.D. Gaur Hanumantpuram, Lane No. 6 Rishikesh-249201 (UK)	rdgaur2009@gmail.com	09412961288	
7	Dr. K.L. Goyal Director (IMD), General Manager Energy Research, ONGC 8A Bengali Mohalla Road Dehradun-248001 (UK)	klgoyal@hotmail.com	0135-742414	
8	Dr R.K. Gupta 91/2 VijayPark Dehradun-248001 (UK)	rkg1924@yahoo.com	0133-2430426	
9	Professor V.K. Gupta Department of Chemistry IIT Roorkee Roorkee-247667 (UK)	vinodfcy@gmail.com	01332-285801	
10	Dr A.P. Joshi Village- Ghisarpadi PO- Mehuwala via Majra Dehradun-248001 (UK)	dranilpjoshi@yahoo.co.in	0135-2642391 09411109073	

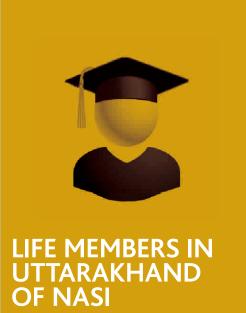


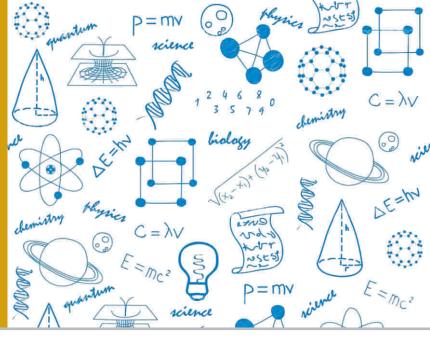


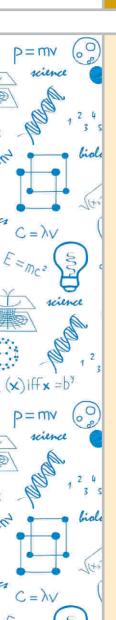


20	Dr. Ram Sagar Director Aryabhatta Research Institute of Observational Science ManoraPeak Nainital-263129 (UK)	sagar@aries.ernet.in	05942-235136
21	Professor D.C. Shrivastava Department of Earth Science IIT Roorkee Roorkee-247667 (UK)	dpkesfes@iitr.ernet.in	01332-285558
22	Professor S.P. Singh Advisor SGRR Institute & Colleges Patel Nagar Dehradun-248001 (UK)	surps@yahoo.co.in	09758765300
23	Dr S.N. Talukdar Director Institute of Petroleum Exploration ONGC Dehradun-248001 (UK)	NA	-
24	Professor Arun Verma Department of Mathematics IIT Roorkee Roorkee-247667 (UK)	NA	-









(x) Iff  $x = b^y$ 

08

1 DR ARIF MOHAMMAD,

M.Sc., D.Phil., F.A.Z., F.B.R.S.,F.P.S.S., F.A.Z.R.A. Scientist E, Govt. of India Ministry of Defence Defence Institute of Bi Energy Research, Goraparao Haldwani, NAINITAL - 263139

t. 05946-232800 Ext. 223(O) 232832, 219405(R)

m. 09412977248

F. 232719

arif527@rediffmail.com

2 DR HARIDATT BIST,

M.Sc.,Ph.D.

Formerly Professor

Centre for Laser Technology

IIT, Kanpur

14/35 G.B. Pant Marg

P.O. BhotiyaParao

HALDWANI-263139 (UTTARANCHAL)

DR P.V. DEHADRAI,

F.G.,F.G.M.S.,M.M.G.I.

Director (P&E)

ONGC

Tel Bhawan

**DEHRADUN - 248001** 

4 DR RAJENDRA DOBHAL,

M.Sc.,Ph.D.

Director General

Uttarakhand State Council for Science & Technology

6, Vasant-Vihar, Phase-I

**DEHRADUN - 248006** 

t. 0135-2762759(O)

2771944(R) m. 09458151777

f. 2761063

rdobhal@rediffmail.com

DR Y.N. DWIVEDI,

M.Sc.,Ph.D.,FZS,FAZ,FAEB Associate Professor in Zoology Sahu Jain (PG) College Jai Nagar, Near Bus Stand NAJIBABAD - 246763

t. 01341-230020(O)

m. 09719423723

6 DR RAJENDRA PRASAD GAIROLA,

M.Sc.,D.Phil.

Professor

Department of Physics

P.O. Box 25

H.N.B.GarhwalUniversity

SRINAGAR GARHWAL - 246174

t. 01346-252331(O)

252414(R)

m. 09456303066

rpgairola\_ec@rediffmail.com

DR SUNITA GAKKHAR,

M.Sc.,Ph.D.

Professor

Department of Mathematics

Indian Institute of Technology Roorkee

ROORKEE

t. 01332-285171(O)

285693(R)

m. 09719242545

sungkfma@iitr.ernet.in

DR JAGDISH CHANDRA GHILDIYAL,

M.Sc.,D.Phil.

8

Reader
Department of Botany

Govt.P.G.College

KOTDWAR (GARHWAL) - 246149



09

9 DR A.K. GHOSH,

 $C = \lambda V$ 

chemistry

Central Research Laboratory Anti Biotic Project P.O. Virbhadra RISHIKESH

chemistry

wiend

EVINE

nd 15 いらとら

D = MV

#### DR TEJENDRA SINGH GILL, 10

M.Sc.,Ph.D. Lecturer

Department of Zoology KumaunUniversity NAINITAL

#### DR MUNENDRA NATH GUPTA, 11

M.Sc.,Ph.D.,FBS,FPSI Formerly Head of Botany 31/1, KailashVihar Ladpur, Raipur Road **DEHRADUN - 248008** 

m. 09411206218

#### 12 DR UMA SHANKER GUPTA,

Ph.D. Professor Department of Mathematics University of Roorkee ROORKEE - 247667

#### DR RAGHUBAR DATT KHULBE, 13

M.Sc., Ph.D., D.Sc., FBS, FPSI, FRBS (Germany) Professor Department of Botany D.S.B. Campus Kumaun University NAINITAL - 263002

t. 35596

#### DR SARVESH KUMAR, 14

M.Sc.,Ph.D. Lecturer Department of Zoology D.S.B. Campus KumaunUniversity NAINITAL - 263002,

t. 05942-236785 (O) 236602, 236914 (R)

#### 15 DR A.B. LAXAMI,

Department of Mathematics D B S College KumaunUniversity NAINITAL

#### DR ANAND BALLABH LOHANI, 16

M.Sc..Ph.D. Ex Professor of Mathematics Windsor Cottage Mallital NAINITAL - 263001

t. 05942-237489(R) m. 09410141789

#### 17 DR RAKESH KUMAR MAIKHURI,

M.Sc.,Ph.D. Scientist E GB Pant Institute of Himalayan Environment & Development Garhwal Unit, P Box 92, SRINAGAR GARHWAL - 246174

t. 01346-251159(O) 253763(R) m. 09410392632

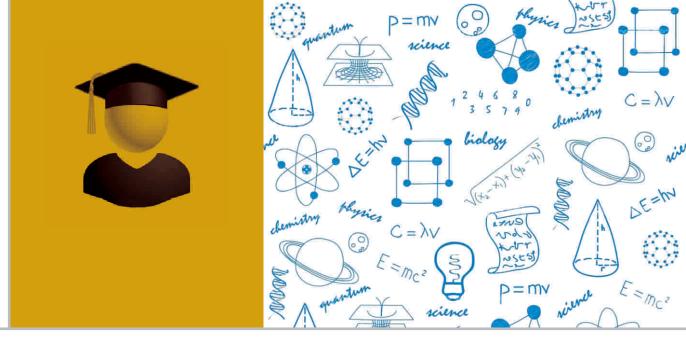
f. 252603

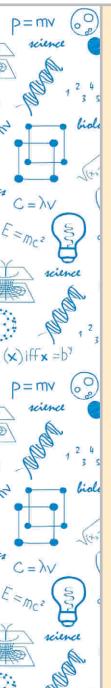
rkmaikhuri@rediffmail.com, rkmaikhuri@yahoo.com



PONE

 $C = \lambda V$ 





(x) Iff  $x = b^y$ 

10

18 DR S.C. MALVIYA,

M.Sc.,Dr.Rev.Nat.

Dean

College of Basic Sciences

Pant Nagar Agri. University

PANT NAGAR

19 DR PRAMOD KUMAR MITTAL,

M.Sc.,Ph.D.

Principal

Government Degree College

Lansdowne

PAURI-GARHWAL

20 DR SHYAMAL KUMAR NANDI,

M.Sc., Ph.D.

Scientist F & Group Head

BCM-BTA

GB Pant Institute of Himalayan Environment

& Development

Kosi-Katarmal, ALMORA - 263643

t. 05962-241041, 241154(O)

m. 09411703555

f. 241150

 $shyamal\_nandi@rediffmail.com$ 

21 DR MALA NATH,

Ph.D.

Professor

Department of Chemistry

Indian Institute of Technology - Roorkee

ROORKEE - 247667

t. 01332-285797(O)

270602(R)

m. 09897135529

f. 273560

malanfcy@iitr.ernet.in

22 DR ANANT RAM NAUTIYAL,

M.Sc., D.Phil.

Director

HAPPRC, HNB Garhwal University

Post Box No. 14

SRINAGAR GARHWAL - 246174

t. 01368-251733, 252172(O) 52675(R)

f. 252070

arn@softhome.net

23 DR M.C. NAUTIYAL,

D.Phil.

Professor, High Altitude Plant

Physiology Research Centre

H.N.B. Garhwal University

P.B. No. 14

SRINAGAR GARHWAL - 246174

t. 01346-252172,251733,253760(O), 252590(R)

f. 252070

mcnautiyal@gmail.com

4 DR PRAKASH NAUTIYAL,

M.Sc.,D.Phil.,FNIE

Associate Professor

Department of Zoology

H.N.B. Garhwal University

P.O. Box 96

SRINAGAR GARHWAL - 246174

t. 01370-267322, 267384(O)

f. 267322, 267384

pn.mahseer@yahoo.com

25 DR NAVNEET

M.Sc.,M.Phil.,FBS,FPSI

Reade

Department of Botany & Microbiology

Gurukul Kangri University

HARDWAR - 249404

t. 0133-454690



11

## 26 DR DEVENDRA SINGH NEGI,

 $C = \lambda V$ 

chemistry

M.Sc.,D.Phil. Reader Department of Chemistry PO Box No. 75 HNB Garhwal University SRINAGAR (GARHWAL) - 246174

RAND

いるか たして しゃくとち chemistry

wiend

t. 1370-267392(O) 267994(R)

m. 09412029934

devendra\_negi@yahoo.com

## 27 DR SHARAD SINGH NEGI,

M.Sc.,Ph.D.,D.Sc. Director Forest Research Institute P.O. New Forest DEHRADUN-248006

t. 0135-2755277(O) 2756803(R)

m. 09411173194

f. 2756868

sharadnegi@hotmail.com

## 28 DR VIJAY PANDE,

M.Sc., Ph.D. Professor of Mathematics Kumaun University TilakPur ALMORA - 263601

t. 05962-237744(O) 230825(R)

vijpande@gmail.com

## 29 DR KAILASH NATH PANDEY,

M.Sc.,Ph.D.,FPSI,FSMP, FNRS Professor & Head Department of Botany Kumaun University S.S.J. Campus ALMORA - 263601

t. 05962-237745(O), 231054(R)

kailash\_nathpandey@yahoo.co.in

## 30 DR NILAMBER PUNETHA,

M.Sc.,Ph.D.,FBS,FIFS Retired Principal 167, Bajethi Ward Near PG College PITHORAGARH - 262502

m. 09759165372

punethan\_bot@indiatimes.com, punethan\_bot@yahoo.com

## 31 DR HAKIM RAI,

M.Sc.,Ph.D. Formerly Scientist F Wadia Institute of Himalayan Geology 125 Bhoorgaon (Panditwari) P.O. Prem Nagar DEHRADUN - 248007

t. 0135-2771236(R)

## 32 DR GOVIND S. RAJWAR,

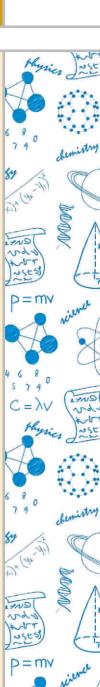
Ph.D.,FLS(Lond.),FNIE
Visiting Professor of Botany &Dy Director,
Higher Education
B-1 Rishi Avenue, Ugrasen Nagar
P.O. Virbhadra
RISHIKESH - 249202

**t.** 0135-2669856(O) 2454131(R)

m. 09412324599

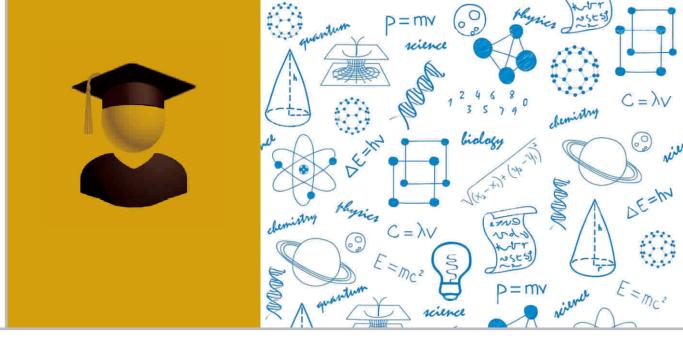
f. 2669856

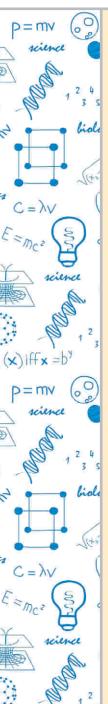
rajwargs@hotmail.com



PONE

 $C = \lambda V$ 





(x) Iff  $x = b^y$ 

12

33 DR RANBEER SINGH RAWAL,

M.Sc.,Ph.D.

Scientist E

GB Pant Institute of Himalayan Environment

& Development

Kosi-Katarmal

ALMORA - 263643

t. 05962-241041(O)

241038(R)

m. 09410392114

f. 241150

ranbeerrawal4@gmail.com

34 DR M.S.M. RAWAT,

M.Sc.,Ph.D.

Professor & Head

Department of Chemistry

Post Box 63

H.N.B. Garhwal University

Srinagar

GARHWAL - 246174

t. 01346-252229(O)

252902(R)

m. 09411104325 msmrawat@gmail.com

35 DR RAJESH SHARMA,

M.Sc., Ph.D.

Scentist F

Wadia Institute of Himalayan Geology 33, General Mahadeo Singh Road

DEHRADUN-2480001

t. 0135-2525183(O)

2722098(R)

m. 09897162714

f. 2625212

sharmarajesh@wihg.res.in

36 DR SHIVPAL SINGH,

M.Sc.

Reader in Zoology

9A, Sewak Ashram Road DEHRA DUN - 248001

t. 0135-2742653(R)

37 DR SHYAM LAL SINGH,

Ph.D.

Emeritus Fellow, UGC

21, Govind Nagar

RISHIKESH - 249201

t. 0135-2431624(R)

m. 09412025236

vedzcmrz@gmail.com, sh42@rediffmail.com

38 DR SHAMBHU DAYAL SINVHAL,

Ph.D.

Formerly Director, UP State OBs.

VC, Kumaun University& Chairman,

UP Higher Edn. Service Com.

C/o Prof. H. Sinvhal

Department of Earth Sciences

University of Roorkee

ROORKEE - 247667

t. 01332-275570

sdsinvhal@hotmail.com

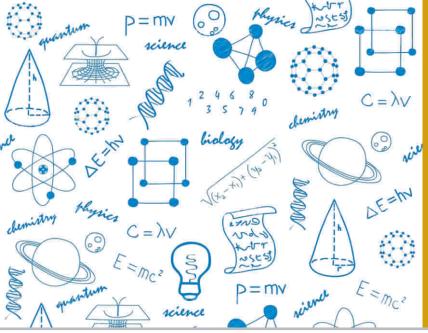
39 DR ANIL KUMAR SRIVASTAVA,

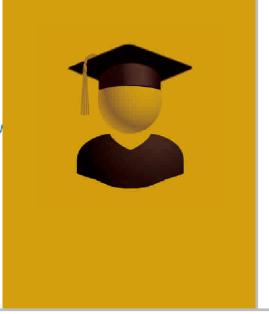
M.Sc., Ph.D.

Lecturer

4, Raipur Road

DEHRADUN





## 40 DR G.S. SRIVASTAVA,

Ph.D.

Professor

Department of Mathematics Indian Institute of Technology Roorkee

ROORKEE - 247667

**t.** 01332-285763(O) 271468(R)

m. 09897071469

f. 273560

girssfma@iitr.ernet.in

## 41 DR S.P. SRIVASTAVA,

D.Phil.

Professor of Chemistry University of Roorkee

ROORKEE

## 42 DR SATISH KUMAR SRIVASTAVA,

M.Sc.,Ph.D.

Senior Scientist

Directorate of Coldwater Fisheries Research BHIMTAL - 263136 NAINITAL

t. 05942-247280, 247279(O)

m. 09453950801

f. 247693

satishsrivastava@mail.com

## 43 DR R.C. SUNDRIYAL,

Ph.D.

Direct

Herbal Research & Development Institute

Mandal, Gopeshwar

CHAMOLI

Res. 59, New Nehru Nagar, Roorkee

t. 01372-254210

m. 09410394846

**f.** 254273

sundriyalrc@yahoo.com

## 44 DR VIKRAM CHANDRA THAKUR,

M.Sc., Ph.D., D.I.C.

Director

Wadia Institute of Himalayan Geology 33, General Mahadeo Singh Road

DEHRADUN - 248 001

## 45 DR YOGESH CHANDRA TRIPATHI,

M.Sc., Ph.D.

Sr. Scientist & Head

Chemistry Division

Forest Research Institute

P.O. New Forest

DEHRADUN - 248006

t. 0135-2752671, 2224207(O)

2750210, 2224582(R)

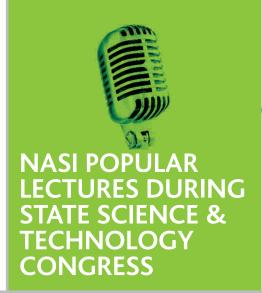
m. 09412050775

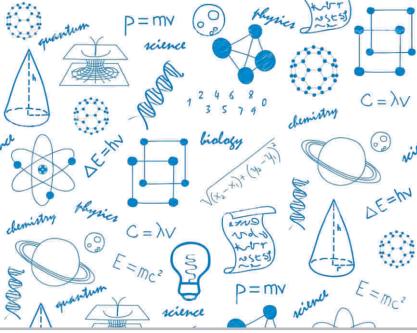
tripathiyc@gmail.com, tripathiyc@icfre.org



PONE

 $C = \lambda V$ 







(x) Iffx =by

(x) Iff x = b)

# Genetic diversity in Indian populations and its health implications

## Dr. Lalji Singh

Vice Chancellor, Banaras Hindu University, Varanasi

Bhatanagar Fellow (CSIR) and Former Director, Centre for Cellular and Molecular Biology, Hyderabad, India

**Date:**15 Nov 2011

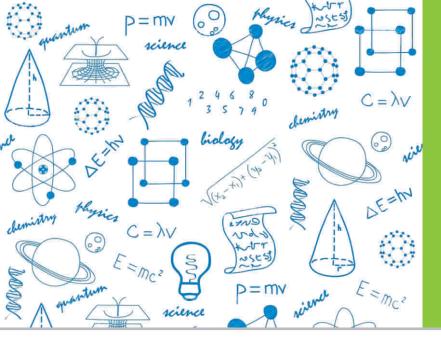
**During:** 6<sup>th</sup> Uttarakhand State Science & Technology Congress

**Held at:** Kumaun University, S.S.J. Campus, Almora.

# 2011



Padma Shri Lalji Singh obtained his M.Sc., and Ph.D (Cytogenetics) from Banaras Hindu University; He spent 13 years in the Institute of Animal Genetics, University of Edinburgh (1974–1987) before joining CCMB. He was OSD in CDFD from October 1995 to February 1999 and Director, CCMB from July 1998 to July 2009. His research interests include Molecular basis of Sex-determination; DNA Fingerprinting and genetic diversity; Wildlife Conservation; Human Genome Analysis and Ancient DNA Studies. He has published more than 219 research papers in internationally reputed journals, including a full article in 'Nature' (2009) which has been also covered on the cover page of 'Nature'. He has written two widely acclaimed books namely 'You Deserve, We Conserve', 'Scientoonic tell-tale of Genome and DNA' and his forthcoming one is 'My Travails in the Witness Box'. He has been conferred with numerous awards, CSIR-Bhatnagar fellow, INSA young Scientist, Ranbaxy Research award to name a few.





# I FCTURF

India represents one of the largest human biodiversity pool in the world. There are 4,635 anthropologically welldefined populations with little or no gene flow between them. Out of these there are 532 tribes, 72 primitive tribes and 36 hunters and gatherers. Hence, study on Indian populations known for their cultural and genetic diversity, not only provides insight into their complex origin, history and relatedness, but also helps in understanding molecular pathology of genetic diseases. Therefore, our interest has been to study both population history and molecular mechanism of diseases in Indian populations.

To shed light on the genetic variability across the Indian subcontinent, 132 Indian samples from 25 groups were analyzed on an Affymetrix 6.0 array, yielding data for 587,753 SNPs after restricting to markers with good completeness. To span the widest range of ancestry in India, Tribal groups were sampled from 13 states and 6 language families (Indo-European, Dravidian, Austro-Asiatic, Tibeto-Burman, Great Andamanese and Jarawa-Onge). Some caste groups were sampled to permit comparison of traditionally "upper" and "lower" caste groups.

There is a strong evidence for two ancient and genetically divergent

populations that are ancestral to most Indian groups today. The "Ancestral North Indians" (ANI), are genetically close to Middle Easterners, Central Asians, and Europeans, while the "Ancestral South Indians" (ASI), are not close to any group outside the subcontinent. By introducing methods that can estimate ancestry without accurate ancestral populations it was shown that ANI ancestry ranges from 39-71%, and is higher in traditionally upper caste groups and Indo-European speakers. Groups with only ASI ancestry may no longer exist in mainland India.

The finding that nearly all Indian groups descend from mixtures of two ancestral populations applies to traditional "tribes" as well as "castes". It is impossible to distinguish castes from tribes using the data. This supports the view that castes grew directly out of tribal-like organizations during the formation of Indian society. The one exception to the finding, that all Indian groups are mixed, is the indigenous people of the Andaman Islands, The Andamanese appear to be related exclusively to the Ancestral South Indian lineage and therefore lack Ancestral North Indian ancestry. In this sense, they are unique.

Many groups in modern India descend from a small number of founding

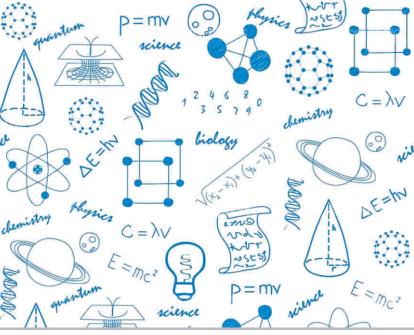
individuals, and have since been genetically isolated from other groups for thousands of years. It has medical implications for Indian populations. Recessive hereditary diseases are likely to be common in populations descended from so few 'founder' individuals. This helps to explain why the incidence of genetic diseases among Indians is different from the rest of the world. For example, an ancient deletion of 25 bp in the cardiac myosin-binding proteins-C gene (MYBPC3) is associated with heritable cardiomyopathies as well as with an increased risk of heart failure. Its prevalence is high (~4%) in the general populations from the Indian subcontinent. However, this mutation is completely absent among the people from the rest of the world.

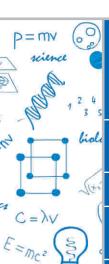
The finding that a large proportion of modern Indians descended from founder events means that India is genetically not a single large population; instead it is best described as many smaller isolated populations. It is important to carry out a systematic survey of Indian groups to identify which ones descend from the strongest founder events. Further studies of these groups should lead to the rapid discovery of genes that cause devastating diseases, and thus will help in the clinical care of individuals and their families who are at risk.











(x) Iff x = b)

 $C = \lambda V$ 

## Indian Mountain Initiative: Role of Science & Technology

## Dr. R.S. Tolia

Former Chief Secretary of Uttarakhand

**Date:** 10 Nov 2010

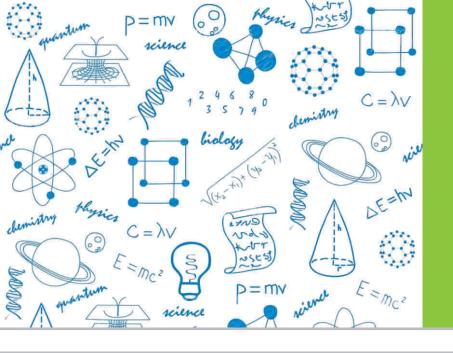
**During:** 5<sup>th</sup> Uttarakhand State Science & Technology Congress

Held at: Doon University, Dehradun

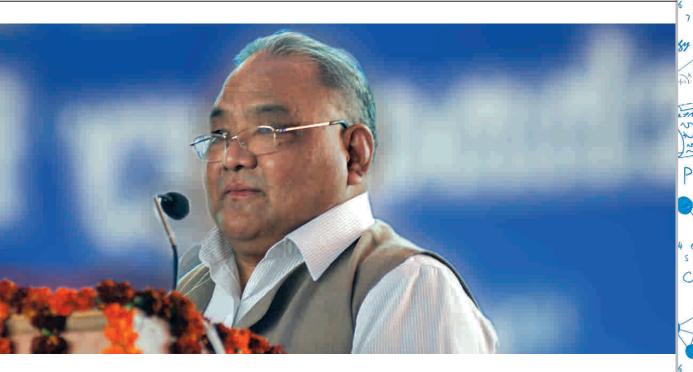
# 2010

Dr. R. S. Tolia, (IAS: 1971) Former, Chief Secretary & former Chief Information Commissioner, Uttarakhand Information Commission, Government of Uttarakhand has done M.Sc. (Mathematics), M.A. and Ph.D. in History. He completed PG Course in Rural Social Development from University of Reading, United Kingdom (Colombo Plan). During his 35 years of service in Uttar Pradesh & Uttarakhand, Government of India, he has held posts related to rural, industrial and mountain development. He was closely involved with Operation Flood, consolidating Amul pattern in co-operative dairying and he was the founding Rural Development Commissioner of Uttar Pradesh. As the Hill Development Secretary he was closely involved with the development of the 8 mountain districts, before bifurcation of the state in 2000. His involvement with training sector has been long and very productive; as Director of the UP Academy of Administration for more than five years (1995-2000), he was instrumental in formulation of National Training Policy and qualitative improvement in the training sector; His trilogy of three books (i) Food For Thought and Action, (ii) Patwari, Gharat and Chai, and (iii) Inside Uttarakhand today, are real time/on-line account of various events and initiatives which were taken in this new State (2000-2005). His other two books are (i) Some Aspects of Administrative History of Uttarakhand, and (ii) Founders of Modern Administration in Uttarakhand (1815-84).





# LECTURE

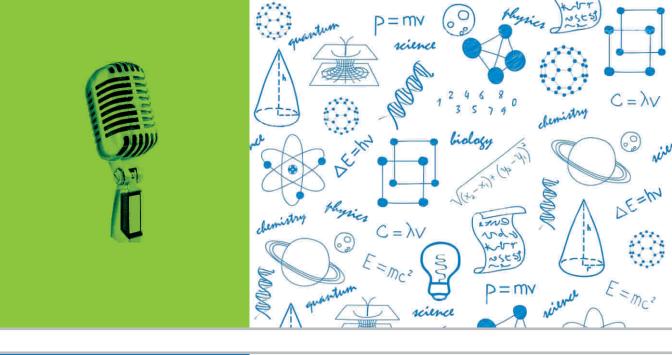


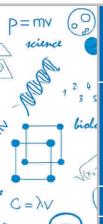
Referring to the Agenda 21 of the Rio Convention and dearth of scientific studies on many facets of mountain biodiversity, Dr. Tolia called upon scientific community to take up multi-disciplinary studies in the Himalayan region and strive for excellence. Dr. Tolia also underlined the need for harnessing the available technology to mitigate the environmental disaster in the hill region, poverty alleviation and

sustaining development efforts in the region. Likewise, stressed the need for filling the missing link and reducing scientific uncertainties due to lack of consistent scientific data on climatic parameters, impacts of global warming on mountain ecosystems, valuation of mountain ecosystem services for enhancing the livelihoods of the poor mountain communities.

Prof Anupam Varma, FNA, FNASc, FNAASc, Chair, National Committee of International Union of Microbiolgical Societies and Former National Professor and Dean, Indian Agricultural Research Institute, New Delhi was the Guest of Honour during the NASI lecture and represented the Academy. The session was attended by more than 200 delegates and was well received by the participants and media.







# Drug Discovery Approaches

## Late Dr. Vinod Bhakhuni

Scientist-in-Charge
Molecular and Structural Biology Division
CSIR-Central Drug Research Institute
(CDRI), Lucknow,

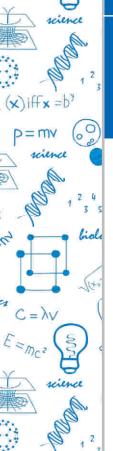
**Date:** 10th Nov 2009

**During :** 4th Uttarakhand Science & Technology Congress

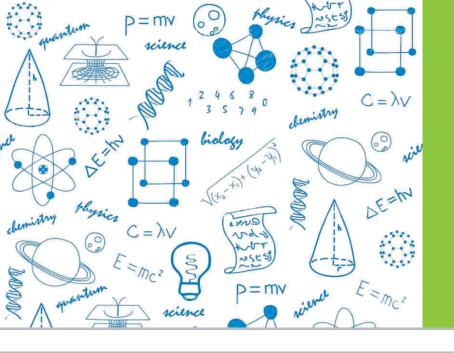
**Held at :** GB Pant University of Agriculture & Technology, Rudrapur, Udhamsingh Nagar

## 2009

Dr Vinod Bhakhuni did his Ph.D. in Cytogenetics. After that he spent 2 years in the John Hopkins University, Baltimore, USA from 1990 - 1992 as a post doctoral fellow. Dr.Bhakuni was among the leading biophysicists of the country. He was deeply interested in understanding protein folding, intermediates and stability in order to gain insight into protein-folding pathways and their future applications. His initial work on several proteins demonstrated the importance of ionic interactions on protein stability and oligomericconformation. He also worked on binding mechanisms of hydrophobic dyes and different alkaloids on cytochrome c, catalase and other proteins and deciphered their folding patterns and pathways. During the late nineties, a much cited work from his laboratory provided evidence for the role of the hydrophobic dye, ANS, in protein refolding. More recently, his interests geared towards understanding the mechanism of action of hyaluronatelyases (HLs) from Streptococci and bacteriophages. Bhakuni's research contributions were recognized by many awards, including the CSIR Young Scientist Award in 1996, the Bhatnagar Prize in 2006, and fellowships of the three Indian science academies. In his short career, he has produced more than 50 quality research papers, reviewed international journals, and has several patents in his name. He has produced more than twenty doctoral students who are serving across the globe in various capacities



(x) Iff x = b

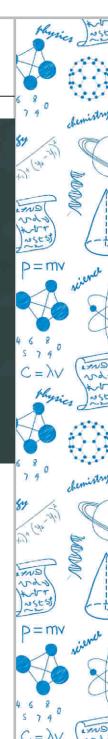


# LECTURE

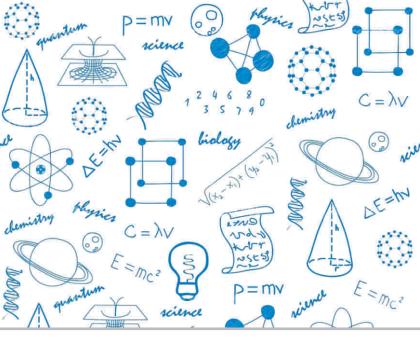


He explained about the multidisciplinary approaches adopted in modern research on drug discovery. He elaborated upon the modern methods of drug discovery which involve several stages of investigation namely

- i) Selection of the most appropriate target in the infected host,
- ii) Design and synthesis of the likely candidate drug molecule(s) and the vehicle(s) for their delivery to the target,
- iii) Fast screening of the synthesized molecules in search of the best candidate for treating widest possible spectrum of patients, and without (or with minimal) adverse side effects.









 $C = \lambda V$ 

(x) iff x = b

Greener Syntheses and Chemical Transformations: Sustainable Alternative Methods and Applications of Nano-Catalysts

## Prof. Rajender S. Varma

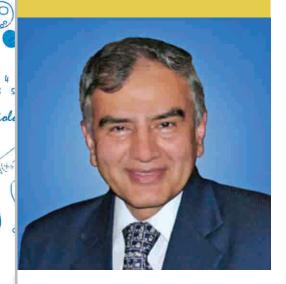
Sustainable Technology Division, National Risk Management Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio45268, USA

**Venue :** H.N. B. Garhwal University

Date: 29thNovember 2010

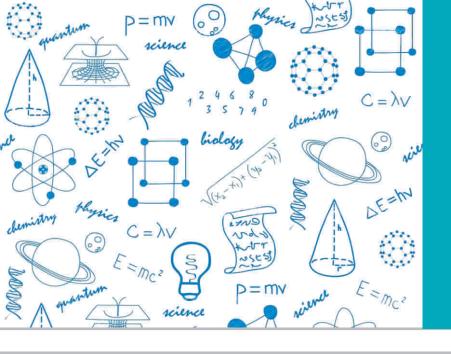
**Venue:** Doon University, Dehradun

Date: 01December 2010.



# 2010

The presentation summarized sustainable chemical synthesis activity involving benign alternatives, such as the use of supported reagents, and greener reaction medium in aqueous or solvent-free conditions. The synthesis of heterocyclic compounds, coupling reactions, and a variety of name reactions are the main beneficiaries as exemplified by the synthetic reactions catalyzed by basic water or polystyrene sulfonic acid (PSSA) in aqueous media in conjunction with microwave (MW) irradiation. Vitamins B1, B2, C, and tea and wine polyphenols which function both as reducing and capping agents, provide extremely simple, one-pot, green synthetic methods to bulk quantities of nanomaterials in water. Shape-controlled synthesis of noble nanostructures via MW-assisted spontaneous reduction of noble metal salts using sugars was presented. A general method has been developed for the cross-linking reaction of poly (vinyl alcohol) (PVA) with metallic systems; bimetallic systems, and SWNT, MWNT, and C-60. The strategy is extended to the formation of biodegradable carboxymethylcellulose (CMC) composite films with noble nanometals; such metal decoration and alignment of carbon nanotubes in CMC is possible using MW approachwhich also enables the shape-controlled bulk synthesis of Ag and Fe nanorods in poly (ethylene glycol). MW hydrothermal process delivers magnetic nanoferrites and micro-pine structured catalysts are obtainable in water from readily available metal salts. Sustainable route to nano particles using polyphenols from winery waste, their applications in catalysis, toxicity and environmental remediation was highlighted.



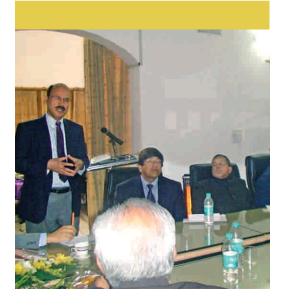
# **Energy Challenges** of Future

## Dr. B.S. Rawat,

Head, Dept. of Electrical and Biomedical Engineering, University of Nevada, U.S.A.

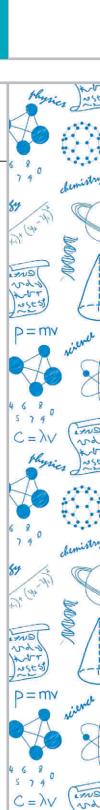
Venue: UCOST Conference hall

**Date:** 4/01/2010

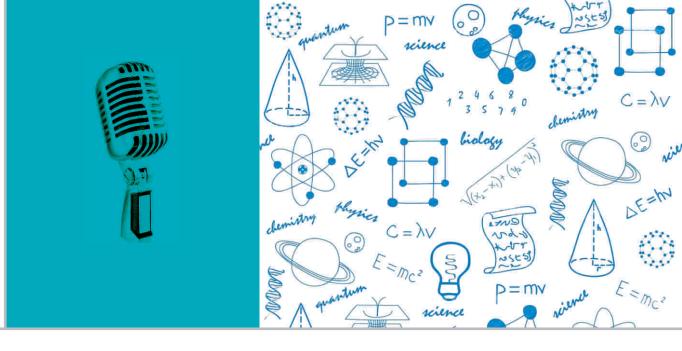


# 2010

Dr Rawat outlined that Nuclear energy and non-renewable sources of energy like fossil fuels are the best known sources of generating electricity, as of today. Despite the fact that India has been using solar energy for the past 30 years our country has been able to achieve not more than 12 % energy efficiency, therefore there is an urgent need for generating and storing energy efficiently and cost effectively. The countries like France have started researches in generating electricity by using sea currents. He advocated the need for storage of energy using optical fibre technology with the help of energy efficient approaches and devices like capacitors, mechanical and gravity approaches, reflecting cavities and batteries. He came out with a startling revelation that our country lacks in storage technology of electricity. We should therefore find alternative solutions to generate and store energy for exploring the possibility for electricity on demand, just as optical fibre technology.







# p = mvseitne $1^{2}$ $4^{3}$ bioli $E = mc^{2}$ seitne $1^{2}$ $4^{3}$ $5^{3}$

# Alternatives to allylstannanes for remote stereocontrol

## Dr. E.J. Thomas,

The School of Chemistry, University of Manchester, UK

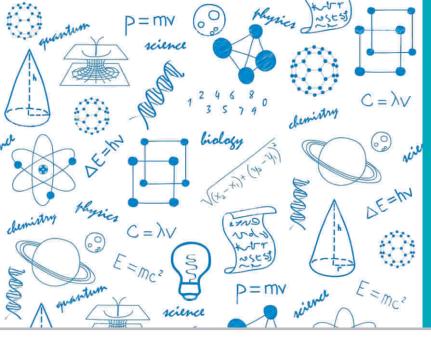
Venue: UCOST Conference hall

**Date:** 4/01/2010



# 2010

Allylstannanes with remote heteroatom substituents are transmetallated by tin(IV) halides to give allyltintrihalides which react with aldehydes with useful levels of remote stereo control; the use of this chemistry is exemplified by syntheses of several natural products. However, organotin starting materials are toxic and lead to residues which are difficult to remove and to dispose of. Studies are therefore underway to find procedures to carry out these and analogous reactions without the use of organotin reagents. Following mechanistic studies into allylstannane transmetallation, the use of allylsilicon and germanium reagents was investigated, with the allylgermanium reagents being viable alternatives to allylstannanes. In addition, investigations of reactions of allylstannanes mediated by bismuth (III) iodide led to the development of reactions of allyl bromides with aldehydes promoted by the low-valency species formed by treatment of bismuth (III) iodide with zinc powder. These reactions proceed with useful complementary 1,5 stereo control.





2008

# The Drug Discovery Constraints

## Dr. Vinod Bhakuni

**Venue:** UCOST Conference hall, Dehradun

**Date:** 5th Feb, 2008

Venue: Shri Guru Ram Rai (PG) College

Dehradun

Date: 6th Feb, 2008

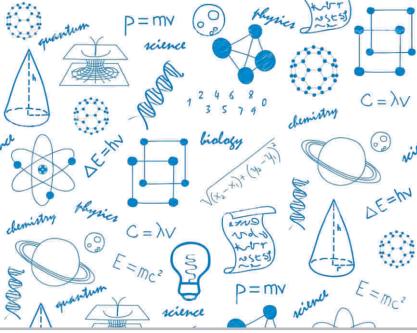


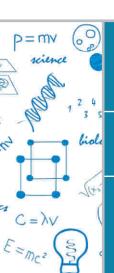
He briefed about the drug discovery constraints & position of India in global platform.Dr Bhakuni highlighted the role of electrostatic interactions in maintenance of quaternary structure and cooperativity in oligomeric proteins which have importance as drug targets in *M. tuberculosis and P. falciparum*.











(x) iff x = b

# Session title Hill Agriculture: Tryst with Challenges and Beyond

#### Vanua

Vivekanand Parvatiya Krishi Anusandhan Sansthan (VPKAS), Almora

## **Prominent personalities**

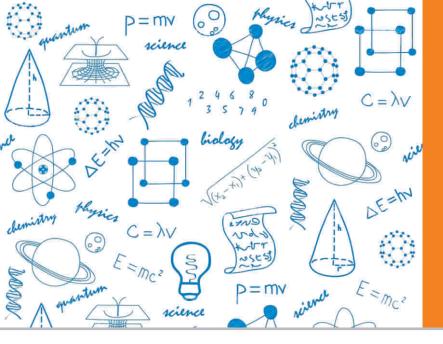
Dr. Mangla Rai (Chairman), Agriculture Advisor to the Chief Minister, Govt. of Bihar and Former Secretary, DARE & DG, ICAR, New Delhi, Dr. J.C. Bhatt (Session Convener), Director, VPKAS (ICAR), Almora, Dr. Lakshmi Kant (Session Coordinator), Scientist, VPKAS, Dr. H.S. Gupta, Director, IARI, New Delhi, Dr. B.S. Bisht, Vice Chancellor, G.B. Pant University of Agriculture & Technology, Pantnagar.





Various challenges faced by the hill agriculture in current scenario and strategies to transform the hill agriculture into a profitable and sustainable profession were discussed. A detailed account of hill agriculture was presented and it was reported that globally, around 50% population lives in and around the hills and mountains. The need of developing infrastructural facilities particularly storage (godown) facilities to reduce post harvest losses in fruits and vegetables was emphasized. Discussions were held on how the ideas, like sustainable agro-ecosystem development; diversification in agriculture; conservation, enhancement and efficient utilization of resources; crop management in changing climate situation; alternative crops and crop rotations; organic farming; conservation agriculture; offseason and European vegetable production; medicinal and aromatic plant cultivation; protected cultivation; farm mechanization; post-harvest crop management and food processing; agro-forestry; fodder production; floriculture; livestock and poultry rearing; pisciculture; apiculture; marketing system development and inter-institutional (government as well as non-government) linkages for farmer's welfare and technology dissemination, could be translated into reality so as to bear fruit at rural mass's doorsteps.

Finally, it was conceded that the knowledge intensive extension system is needed to disseminate different components of technology effectively. Technology should be properly demonstrated to the farmers' for its effective adoption. Knowledge centres for technology dissemination may be established in each district of the state. Large scale protected cultivation in all hill states has a high potential for enhancing income of the farmers and job opportunities, therefore should be promoted. Value addition, processing, packaging, storage, cool chain facilities must be a priority and will give more income and job opportunities.





Emerging Issues in Forestry Research in the Himalayan Mountains

## Venue

G.B. Pant Institute of Himalayan Environment and Development (GBPIHED), Kosi-Katarmal, Almora

## **Prominent personalities**

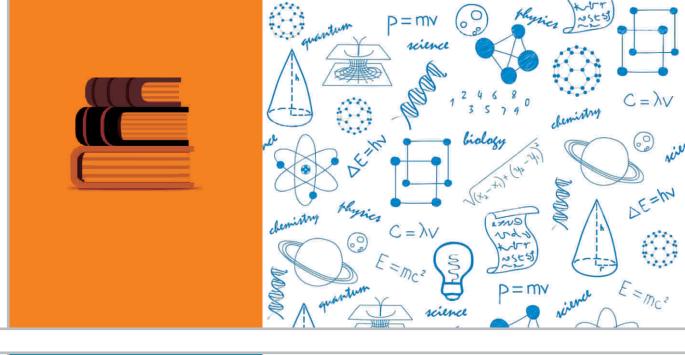
Dr. L.M.S. Palni, (Session Coordinator)
Director, GBPIHED, Dr. G.C. S. Negi, (Session Convener)Scientist, GBPIHED, Prof. S.P. Singh Ex. Vice Chancellor, Garhwal University, Srinagar Advisor, State Planning Commission, Govt. of Uttarakhand, Dr. G.B. Pant Ex-Director, Indian Institute of Tropical Meteorology, Pune, Dean, Doon Open University, Dehradun, Dr. O.P.S. Bana, Professor, G.B. Pant University of Agriculture & Technology Pantnagar, Uttarakhand.



The experts of the session delivered their views on Emerging issues in forestry research in Himalayan Mountains, Measuring forest carbon in participation with communities in Uttarakhand, Climate studies from tree rings, Reducing carbon emission from deforestation and forest degradation and on Innovative approaches for forest restoration and conservation: case studies from Indian Himalayan Region. It was recommended to initiate a programme on forest ecosystem services (both direct and indirect), particularly highland-lowland links through rivers to better understand, quantify and value the contribution of forests in the national GDP and make a stronger case for compensation for conservation of the forests, including by the local people. In the face of Climate Change Himalayan forests will act as a refuge for some temperature sensitive spp. Corridors for migration of such spp. need to be identified and protected from further habitat fragmentation. Impacts of CC on forests need to be better understood. Some signs of impacts in the form of early flowering, invasion by weeds and altered composition of forests may have longterm consequences regarding the functioning of forests.









Science and Society

## Venue

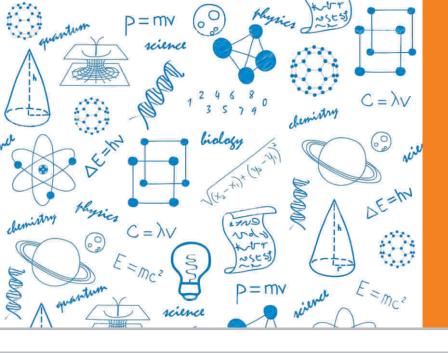
Uttarakhand Seva Nidhi Paryavaran Shiksha Sansthan (USNPSS), Almora

## Prominent personalities

Dr. Lalit Pande, (Session Convener),
Director, USNPSS, Almora, Dr. H.C. Pande,
(Session Chairman), Vice Chancellor
Emeritus, BIT, Ranchi, Sh. Ranjan Joshi,
(Session Rapporteurs), USNPSS, Almora,
Smt. Sangeeta Pawar, (Session
Rapporteurs), Kumaun University,
Nainital, Dr. Trilochan Sastry, Professor
and Dean (Academic), Indian Institute of
Management, Bangalore.



Food processing and farmers, sustainable solutions to energy poverty and on using traditional and modern science for development in Uttarakhand were the key components of the session. In Uttarakhand, where people are leaving agriculture and moving into other activities, the challenge is how to link farming to market in a way that is environmentally sustainable. There is a big difference between the price to farmers and the price to consumer. The challenge is how to make agriculture remunerative to farmer who is caught between private capital's greed and government's inefficiency and corruption. Is there a middle way? Expert of the session suggested that "People sector" may offer a way out. At the end of the session it was recommended that the agro based activities should be organized through co-operatives and as in in western countries; co-operatives should be self-managed and not work as department of the Government. There is need to develop a data base for traditional knowledge in particular for nutritional, medicinal and high altitude plants. It is also necessary to provide IPR cover for traditional knowledge and also develop standardization and validation techniques and establish relevant facilities for the same.





Measures to be taken for the Development of Mathematical Sciences in Uttarakhand

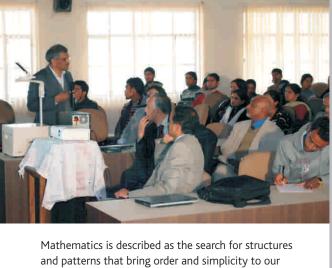
## Venue

Department of Mathematics, SSJ Campus, Kumaun University, Almora

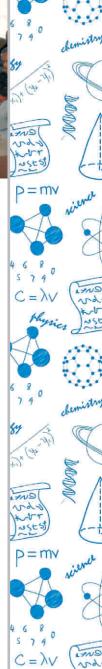
## **Prominent personalities**

Prof. S. Kumaresan (Session Chairman) HOD, Department of Mathematics & Statistics, University of Hyderabad, Hyderabad, Prof. H. S. Dhami (Session Coordinator)Head, Department of Mathematics, Kumaun University, SSJ Campus Almora, Prof. C.S. Aravinda, Tata Institute of Fundamental Research Center, Centre for Applicable Mathematics, Bangalore, Prof. Jugal Verma, Department of Mathematics, Indian Institute of Technology Mumbai., Prof. Mohan C. Joshi, Department of Mathematics, IIT Mumbai participated in the discussion.

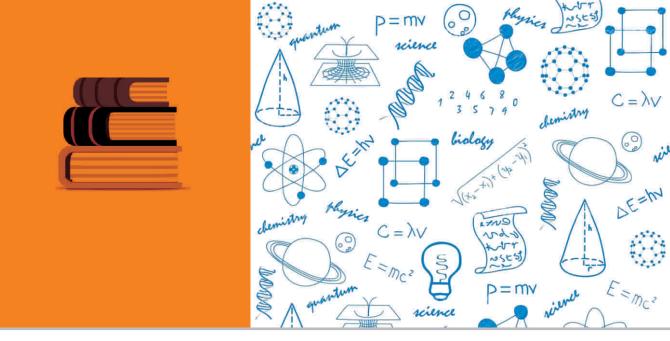


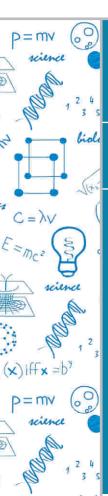


universe. Advances in mathematical sciences are of interest in themselves; the key point is that advances in their fundamental disciplines play an enabling role for all science, engineering and technology. In order to effectively implement the proposed revised syllabus, it was recommended that a series of intensive teachers training programmes at all levels be organized in coming years in phased manner. It was also felt that the syllabus revision is a long process so in the first phase it should be implemented at the graduation level. It is recommended that Uttarakhand Centre for Mathematical Sciences be established. The professor in charge of the centre should be made responsible for organizing the programme with expert advice from National advisory council (to be constituted for this purpose) consisting of eminent mathematicians from India and abroad. UCOST be requested to sanction some seed money to establish the centre. The Head of the centre should approach the National bodies and private sector for running the programme. The centre should act as a catalyst to improve the state of mathematical sciences in the state of Uttarakhand.









Development of Uttarakhand State Spatial Data Infrastructure (SDI) for Decentralized Governance

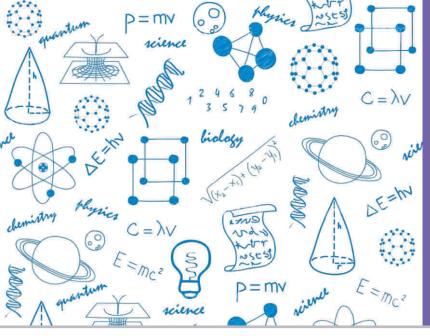
## Venue

Department of Forestry, SSJ Campus, Kumaun University, Almora

## **Prominent personalities**

Some of the personalities who participated were Prof. V. P. S. Arora (Session Chairman), Vice Chancellor, Kumaun University, Nainital, Prof. J.S. Rawat (Session Coordinator), SSJ Campus Almora, Kumaun University, Shri. P. S. Acharya, Director, Department of Science and Technology, Government of India, New Delhi, Sri Rajeev Chandra, Former Secretary Science & Technology, Government of Uttarakhand. Prof. D. N. Pant Retd. Professor Indian Institute of Remote Sensing, Dehradun

Emerging technologies like Spatial Databases, Spatial Data Processing Tools, Web/ Internet, Mobile Devices, Geo-spatial Data and Process Standards and institutional mechanism/ policies for spatial data sharing were discussed and demonstrated which are beneficial in this context. The Twelfth Five Year Plan (2012-2017) Approach Paper of the Planning Commission recognizes 'appropriate compilation of diverse information' as a focus area in the context of sustainable management of natural resources. At the end, it was recommended that a State level Coordination Committee should be constituted under the chairmanship of an adequately senior official of the level of Chief Secretary or the Financial and Rural Development Commissioner with membership drawn from various Line Departments concerned with spatial data for improving management of spatial data in the State. A group of leading scientists/experts from the relevant domains should be inducted in the Committee along with representatives from the corporate sector and the civil Society.





## **Science Day**

2011



Every year National Science Day (28th Feb) is celebrated by the Council throughout the state. In year 2011, National Science Day was jointly celebrated by NASI-UK chapter and UCOST in 11 districts of the state with the help of UCOST's District Co-ordinators. The programme included popular lectures along with competitions for students like Essay writing, quiz, drawing and poster etc. Some of them are highlighted below:

## Dehradun

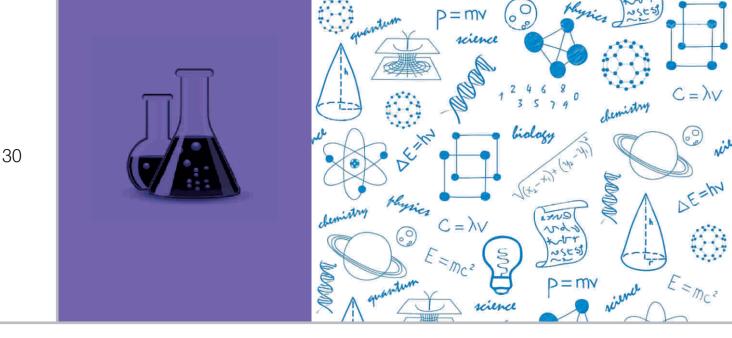
A popular lecture of Prof. H.C. Garg, (Retd.) IIT, New Delhi was organised at Dolphin Institute of Bio-Medical & Natural Sciences, Dehradun. The lecture was delivered on "Sustainable Energy Development" wherein he stressed the need to enhance the development capacity of energy through non renewable sources. According to Prof. Garg for a developing country to get transformed into a developed one,

the country has to pay importance to energy security. To increase its potential of energy generation, sustainably and efficiently advance power infrastructure is required to minimise the transit and generation losses.

## Champawat

To commemorate Science day,three popular lectures were organized at Jawahar Navodaya Vidyaylaya, Champawat. Professor H.C. Dhami, Department of Mathematics,

Kumaon University, Almora
Campus, Almora delivered lecture
on 'Utility of Mathematics'.Dr.
Gangotri Tripathi, Principal S.V.P.G.
College, Lohaghat delivered her
lecture on 'Biotechnology' while
Prof. R.S. Bhakhuni, IIT (Retd.) on
the 'Need of Science & Technology'.
In addition, an essay competition
on the topic 'Science and Our
Earth' at G.I.C. Lohaghat and
'Science is a boon or a curse' was
organized at Vivekanand Vidhya
Mandir.





(x) iff x = b

## Bageshwar

Dr. S.K. Nandi, Scientist, G.B. Pant Institute of Himalayan Environment and Development, Kosi Katarmal, Almora gave a popular lecture at Countrywide Public School, Bageshwar. The lecture was delivered on 'Biodiversity and its conservation'. Apart from this talk, Science slogan writing and quiz competitions were also organized for the students.

## Chamoli

Science day was celebrated at Government Post Graduate College, Gopeshwar in a scientific gathering where various science competitive programmes were organized. Students participated in quiz, a debate competition on the topic 'Impact of development of science on environment' and in essay writing competition on 'Science in Traditional Knowledge'.

## Pithoragarh

The event was celebrated at L.S.M. Govt. PG College, Pithoragarh where nearly forty Professors from different departments, more than 150 researchers, post graduate and undergraduate students of Science, arts and commerce discipline took part. A discussion forum took place where the scientists discussed about the Science & Technology in the state.

## Haridwar

Prof R.D. Gaur, Retired from Garhwal University delivered a lecture on 'Biological Sciences' at Gurukul Kangri University, Haridwar

## Uttarkashi

A Popular Science lecture was organized at Nehru Institute of Mountaineering, Uttarakashi. Dr. G.S. Rawat, Wildlife Institute of India spoke on the topic of 'Bugyals of Uttarakashi: its conservation and protection'.

## Nainital

A galaxy of eminent scientists gathered for a brainstorming session on 'Role of Science & Technology in development of Uttarakhand' at Nainital. Prominent among them were Dr. L.M.S. Palni, Director, G.B. Pant Institute of Himalayan Environment and Development, Kosi Katarmal, Almora; Dr. C.S. Nautiyal, Director NBRI, Lucknow, Dr. N.S. Jayda, Principal Medical College Haldwani and Dr. B.S. Bisht, VC, GB University of Agriculture and Technology, Pantnagar, U.S. Nagar.

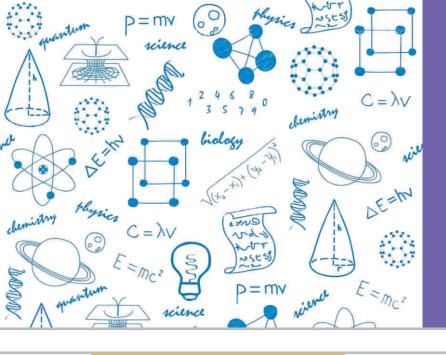
## **Udhamsingh Nagar**

Dr. Shipra Mishra, Deputy (Dy)
Director DIPAS, New Delhi gave a
popular science lecture on Arsenic
removal from drinking water. In
addition a technical session was
held where students and the faculty
showcased their work through
presentations.

## **Science Day**

2012

On the occasion of the national science day, a function was held at the ONGC, Dehradun where 400 students participated. Prof A.N. Purohit, Former VC HNB Garhwal University, Dr. Rajendra Dobhal, Director General, UCOST and Dr. M.O. Garg, Director, CSIR-IIP, Dehradun graced the occasion. Dr. Garg gave a popular lecture on 'Fuel evaporation in retail sector' while Prof A.N. Purohit briefed the audience about the impacts of Climate change and how its harmful repercussions were being felt across the globe. He exhorted the young students to follow the path shown by Nobel laureate Late CV Raman.



## **Earth Day**

# 2010



## Earth Day, 22 April 2010

This event was celebrated at the Conference hall of UCOST, Dehradun. Over 30 participants representing civil society, academicians and environmentalists discussed the major environmental issues in the mountain state of Uttarakhand and gave valuable suggestions to the organizers (NASI office bearers and UCOST) for promoting research on environmental issues in the state. While chairing the opening session, Prof. A.N. Purohit highlighted the importance of simplifying the life style and avoiding wastage of energy. He further expressed concern over degradation of Himalayan Environment and role of younger generation in reversing the process. The brief proceedings of the conference (principles of reduce, reuse and recycle) was widely published in local media with a view to increase public awareness towards environmental conservation.

## **World Biodiversity Day**

2010

World Biodiversity Day was celebrated on 22nd May, 2010, at the Government Inter College Munsiary, one of the remote colleges in the state. Two scientists and three research scholars from the Wildlife Institute of India conducted two sessions for the teachers and science students at this college. Two popular talks were delivered

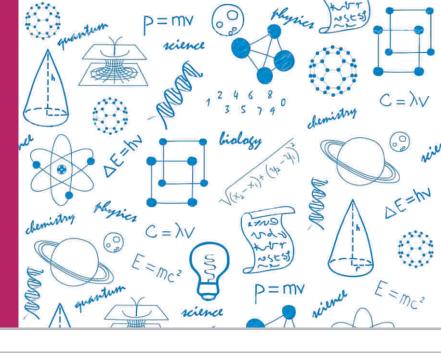
- Biodiversity of Uttarakhand,
- (ii) Floral Diversity of Himalaya by the resource persons. This was followed by 3 hours of nature orientation programme. In this session students were taken for a walk to the nearby forests and importance of common trees, butterflies and animals were explained. The programme was a grand success.













 $C = \lambda V$ 

To promote science teaching and recognise the existing excellence in the field of science teaching at school level within the state, NASI Best Science teacher Award is conferred annually.

## Mr. Alakh Narayan Dubey

**Post:** Assistant Teacher

Subject: Science

During: 6th USSTC-2011

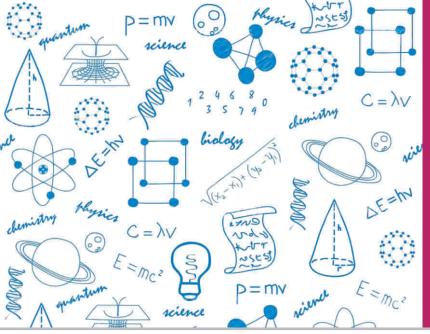


# 2011

Mr.A.K. Dubey is currently teaching Science subject at Govt. Higher Secondary School, Aagar, Tehri Garhwal since 2001. Earlier to joining this school, he was teaching at Govt. higher secondary school Beddhar, TehriGrawal for more than five years. With 15 years of experience in education, he has achieved great laurels during this period.

He has inspired students of the school towards developing scientific temper and motivated them to participate in scientific activities and competitions. He has also initiated various programmes like science seminars, exhibitions, fairs, drama in the school premises. During the first state level INSPIRE award exhibition, among the three candidates selected, two students were from his school and working under his guidance. He has also been appointed as District Science Coordinator by District Education Officer for Tehri Garhwal.

He has also been involved with Galileo Science Club, coordinating activities on Science day, earth day, Ozone day by sensitizing the masses of the district about their importance in our lives. In 2004, Vigyan Prasar established seven centers in the district to watch the astronomical view of Venus, where Mr. Dubey actively participated.







## Mr. Umesh Chandra Pandey

Post: Lecturer

**Subject**: Mathematics

**During:** 5th USSTC-2010

# 2010

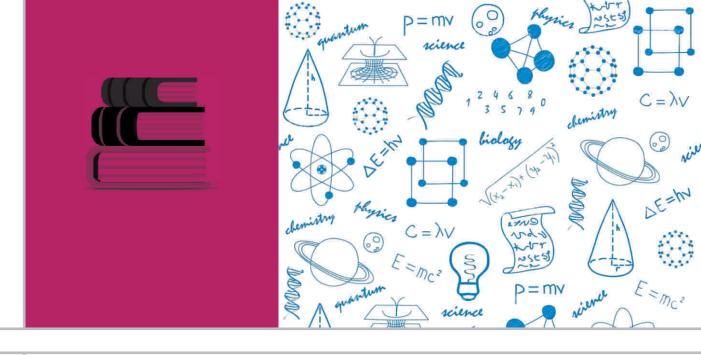
Illustration: Born on 01.07.1965, Mr.Umesh Chandra Pandey is a highly qualified teacher/ lecturer of Mathematics. He has offered 23 golden years of his life to teaching students at KIC Kapkot; GIC Almora; GIC Manan, Almora and GIC Dinapani, Almora. He has undertaken various training at multiple institutions in India on computers, journalism and mathematics. The best representation of his capabilities is the fact that 100% of his students cleared the XIIth board exams in four consecutive years from 2005 - 2008.

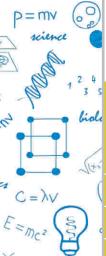
He has authored two books, viz, 'How to Multiply' and 'How Magical is Periodic Table' and designed one CD,

'Chemistry made Simpler'. These achievements depict his multidisciplinary activity. His 'Chemistry made Simpler' has won for him several national and international awards. At Cambodia his work received country's winner award; at Helsinki he received the award of "One of the most innovative educator of the World". In India he also received Innovative Teachers Leadership Award. Apart from these, he has also won several awards at state and district level.

He has actively participated in many district, state and national level children science exhibitions and children science congress along with his students. He has the privilege of being one of the country's master trainers in Global Learning and Observation to Benefit he Environment (GLOBE), where he imparted training to teachers of Kerala, Himachal Pradesh and Uttarakhand. He has been working as an active member of the Wiki team of IGNOU, Delhi whose main aim is to develop educational content for the upper primary level at the school.







(x) Iffx =b

## Mr. Narayan Singh Rana

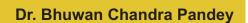
Post: Lecturer

**Subject**: Botany

**During :** Young scientist conference at Doon University, Dehradun

# 2009

Mr.Rana has been teaching at Government Kirti Intercollege, Uttarakashi since last 30 years. He is an active science coordinator in his district organizing various science related activities for the masses. Nearly 38 Science based workshops/ conferences he has organized during this period.



Post: Lecturer

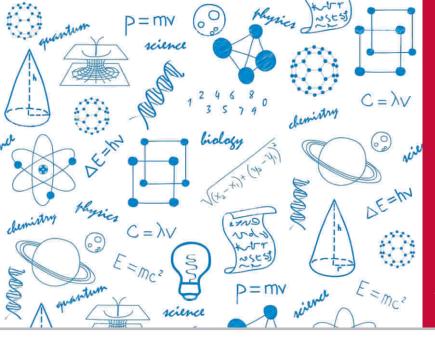
**Subject:** Botany

**At :** Kendriya Vidyaylaya-ONGC, Dehradun

Date: 17th Oct 2008

# 2008

Dr. Pandey has been teaching science subject in Govt Inter College, Khoont, Almora for past five years. Armed with highest degree of education, he has a rich background of publications, membership to scientific associations and participated in various district level programmes in promotion of scientific temper among the students.



## **WORKSHOPS**

International Workshop on Source, Treatment & Distribution of Drinking water

**Date:** 14-15 Sept 2009 **Venue:** ICFRE, Dehradun

**Collaborators:** UCOST, Dehradun; USERC, Dehradun; NASI, UK Chapter, University of Applied Sciences, Dresden, Germany; Uttarakhand Jal Sansthan, Dehradun, Cooperation Centre for River Bank Filtration (CCRBF), Haridwar

Prominent Personalities: Dr. Rajendra Dobhal,
Director, UCOST/USERC,Prof. Thomas Grischek, University
of Applied Sciences, Dresden, Germany, Dr. Sanjay Bajpai,
Director, WTM, DST, Gol, New Delhi, Dr. P.R. Ojasvi, Central
Soil & Water Conservation Research and Training Institute,
Dehradun, Dr. Bhism Kumar, National Institute of
Hydrology, Roorkee, Dr. R.K. Rawlley, CSIR-Advance Material
and Process Research Institute, Bhopal, Prof InduMalhotra,
Department of Civil Engineering, IIT, Roorkee

**Brief:** The first Indo-German Workshop on Source, Treatment and Distribution of Drinking water broadly covered topics like water resource management, Riverbank filtration (RBF), Quality assessment and Water treatment processes. The aim was to give an exposition of the diversity of issues concerning drinking water research portfolios and the S&T interventions occurring in both the countries. Imbruing interest in delegates from both the countries,as a consequencean outcome of the workshop was a compilation of the papers in a book form titled 'Drinking water: Source, Treatment and Distribution' which was published in 2011.



Indo-German workshop on "Bank filtration for Sustainable Drinking water"

**Date:** 29 April - 01 May 2011 **Venue:** Hotel Softel Plaza

Collaborators: UCOST, Dehradun; NASI UK
Chapter, Dept. of Science and Technology, GOI; Division of
Water Science, University of Applied Sciences Dresden,
Germany; National Institute of Hydrology, Roorkee;
Uttarakhand Jal Sansthan; Uttarakhand Environment
Protection and Pollution control Board.

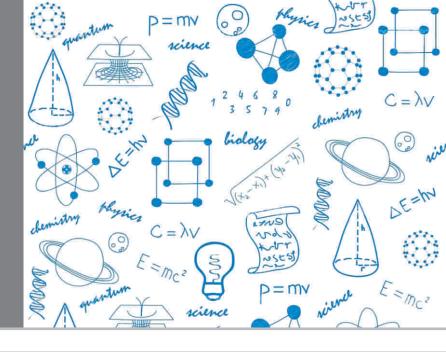
Prominent Personalities: Sh. Rajeev Chandra, Secretary, S&T, Govt. of Uttarakhand Sh. R.D. Singh, Director, NIH, Roorkee Prof. Thomas Griechik, University of Applied Sciences, Dresden, Germany, Dr. Rajendra Dobhal, Director General, UCOST, Dehradun, Sh. D.D.Dimri, Chief General Manager, UJS, Dehradun, Er. P.C. Kimothi, Secretary Appraisal, UJS, Dehradun, Dr. V.C. Goyal, Scientist, NIH, Roorkee, Mr. G. Sandhu, University of Applied Sciences, Dresden, Germany, Dr. InduMalhotra, IIT Roorkee, Mr. K. Srisuk, Thailand, S. Bajpai, Director, Technology Mission Cell, DST, New Delhi, S. Stauder, Germany, Prof. Eckert, Germany, Dr. N. C. Ghosh, NIH, Roorkee, Dr. Cheryl Bertelkamp, Delft University of Technology, The Netherlands, Cintia Racine, Canada, Prof. Girijesh Pant, Vice Chancellor, Doon University, Er. H.P. Uniyal, Director, State Planning Commission, Uttarakhand

**Brief:** The workshop focused on the issues of application of bank filtrations (BF) in India, Germany, The Netherlands, Canada and Thailand; relevant water quality parameters for BF, relevance of groundwater modeling for managing BF schemes, present recent results of detailed hydrogeological investigations at BF locations. Main recommendations of the workshop are:

- Identification of further potential sites for RBF in Uttarakhand with a special focus on hill regions.
- Development of low cost monitoring devices to control drinking water quality,
- Integration of industries in collaborative research projects.
- The international collaboration through workshops, staff and student exchanges and collaborative research projects must be increased.



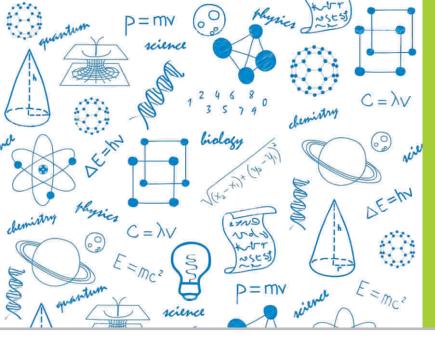
# PROPOSED ACTIVITIES IN 2012



- 1. Popular Lecture Series: A series of popular lectures to be organized in the areas of basic sciences in universities, all across the state to encourage the students to take up basic science as their subject in post-graduation. There shall be 4 lectures to be organized, 1 in each quarter of 2012 on different topics. The lectures will be delivered by eminent scientists and renowned academicians.
  - Workshops & Seminars: The issues of energy and biodiversity are of prime importance in the context of the development of the state. Uttarakhand being a forest dominated state, having two major river systems is habitat of more than 175 rare plant species. Thus, the issues of biodiversity conservation and application of renewable energy should be taken sincerely to meet out the growing economic developmental aspects of the state. Therefore, it is proposed to organize a conference/talk

- on both these issues to formulate a strategy so as to ensure sustainable utilization of these two main resources of the state.
- The Year of 2012 is the International Year of Mathematics and Uttarakhand State Council for Science & Technology, Dehradun in association with Department of Science & Technology, National Board of Higher Mathematics and CSIR is establishing Centre of Excellence of Mathematical Studies under the aegis of Department of Mathematics, Kumaun University, Almora. Moreover, it is felt that NASI, UK-Chapter could play a role in this respect and an event regarding the promotion of higher studies in mathematics among the young students would be conducted.
- 4. Some other events would also be organized with respect to scientific needs of the state, which will be felt necessary in the year.





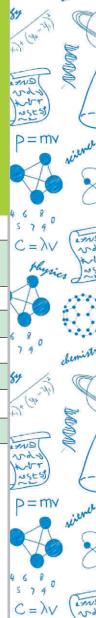
# FORTHCOMING EVENTS

- Prof. M.G.K. Menon, Former Minister of Science and Technology, Govt. of India and former Chairman of ISRO, will deliver a popular lecture on 24th May 2012 at ICFRE auditorium (FRI Premises) Dehradun.
- Popular lecture by Dr. Balaram Bhargava: MD, DM, FRCP (Glasg), FRCP (Edin), FACC, FAHA, FIACS, FAMS, FNASc Professor of Cardiology, Cardiothoracic Sciences Centre, Executive Director, Stanford India Biodesign Centre, All India Institute of Medical Sciences, New Delhi on 24th May 2012 at Dehradun
- 3. Vision Group Meeting on 25th May 2012 Council in association with NASI & Uttarakhand Science Education and Research Centre is organizing a Vision Group Meeting on 25th May 2012 to discuss the direction of Research and Action Plan for Uttarakhand state. Eminent scientists and renowned academicians from all over the country shall be participating in this meeting.
- 4. Best Science Teacher Award 2012 (November)
- NASI Popular Science lecture during State Science and Technology Congress (21-23 Nov 2012)

## **BUDGET**

FinancialYear	UCOST share* Amt. Sanctioned (in ₹)	
2006-07	-	
2007-08	440,000.00	
2008-09	792,569.00	
2009-10	287,204.00	
2010-11	250,000.00	
Total	1,769,773.00	

\* Till 31st March, 2012, all budget has been utilised including the amount received by the NASI.





Uttarakhand State Council For Science and Technology 6, Vasant Vihar, Phase-I, Dehradun-248006, Uttarakhand, India t. +91 135 2763433, 2762766 f. +91 135 2761063 The paper used in printing of this Report is chlorine free. We ensure that the pulp used in the manufacture of paper is derived from environmentally certified forest.

www.ucost.in

activity profile

