



# R. J. COLLEGE of Arts, Science & Commerce (AUTONOMOUS)

(Hindi Vidya Prachar Samiti's RAMNIRANJAN JHUNJHUNWALA COLLEGE of Arts, Science & Commerce)

Opposite Ghatkopar Railway Station, Ghatkopar (West), Mumbai - 400 086, Maharashtra, INDIA.

Website : www.rjcollege.edu.in Email : rjcollege@rjcollege.edu.in Tel. No. : +91 22 25151762 Fax No. : +91 22 25151761

College is recognized under Section 2(f) & 12(B) of the UGC Act, 1956

Affiliated to UNIVERSITY OF MUMBAI II NAAC Re-Accredited 'A' Grade (CGPA: 3.52)

## Notice

प्रति सम्बन्धित

Hindi Vidya Prachar Samiti's

R. J. COLLEGE OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)

Opposite Ghatkopar Railway Station, Ghatkopar (W), Mumbai-400 086.

Department of Physics invites you to a DBT Star activity

A popular lecture on

**Do the Fundamental Constants change with time?**

By

Prof. Nissim Kanekar,

National Centre for Radio Astrophysics,

Tata Institute of Fundamental Research, Pune

Time : 4.30 pm

On Saturday, 30th October 2021

Zoom Meeting Link:

[https://rjcollege.edu.in.zoom.us/j/81591306531?](https://rjcollege.edu.in.zoom.us/j/81591306531?pwd=Z0ROXVPT085TUFR0MTZkdUXXQ109)

[pwd=Z0ROXVPT085TUFR0MTZkdUXXQ109](https://rjcollege.edu.in.zoom.us/j/81591306531?pwd=Z0ROXVPT085TUFR0MTZkdUXXQ109)

Meeting ID: 815 9130 6531

Passcode: 155449

All are cordially invited

Head, Department of Physics

Principal  
PRINCIPAL

RAMNIRANJAN JHUNJHUNWALA COLLEGE  
OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)  
Ghatkopar (W), Mumbai-400 086, Maharashtra, INDIA



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Flyer



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Department of Physics invites you to a DBT Star Activity

A popular lecture on :

***Do the Fundamental Constants change with time?***

Prof. Nissim Kanekar

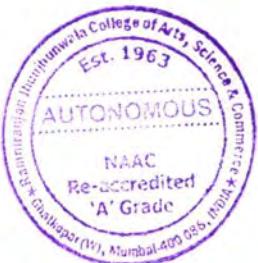
National Centre for Radio Astrophysics


Tata Institute of Fundamental Research, Pune

Date: 30th October, 2021 (Saturday)

Time: 4.30 pm

YouTube: <https://www.youtube.com/rjopencourseware/>



  
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## A popular lecture on "Do the Fundamental Constants change with time?"


Date: October 30, 2021

Time: 4:30 pm

Speaker: Prof. Nissim Kanekar,

CV: Nissim Kanekar obtained his B.Sc. from Mumbai University in 1993 (studying at RamnarainRuia College), his M.Sc. from Pune University in 1995, and his Ph.D. from Pune University in 2000, with the doctoral research carried out at the National Centre for Radio Astrophysics. After a NOVA Fellowship at the Kapteyn Institute, Groningen, The Netherlands, and a Jansky Fellowship and a Max-Planck Fellowship, both at the National Radio Astronomy Observatory, Socorro, USA, he joined the National Centre for Radio Astrophysics in September 2009 as a Reader and a Ramanujan Fellow. He is currently a Professor at NCRA-TIFR.



  
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## Report

A popular lecture on "Do the Fundamental Constants change with time?" by Prof. Nissim Kanekar, National Centre for Radio Astrophysics, Tata Institute of Fundamental Research, Pune, was conducted on October 30, 2021. The speaker spoke on how the fundamental constants in Physics remain constant or evolve over a period of time. 55 people on Zoom and 42 views on You tube live watched this lecture.


No. of participants:

Students: 89 students

Teachers:8

Total:97



  
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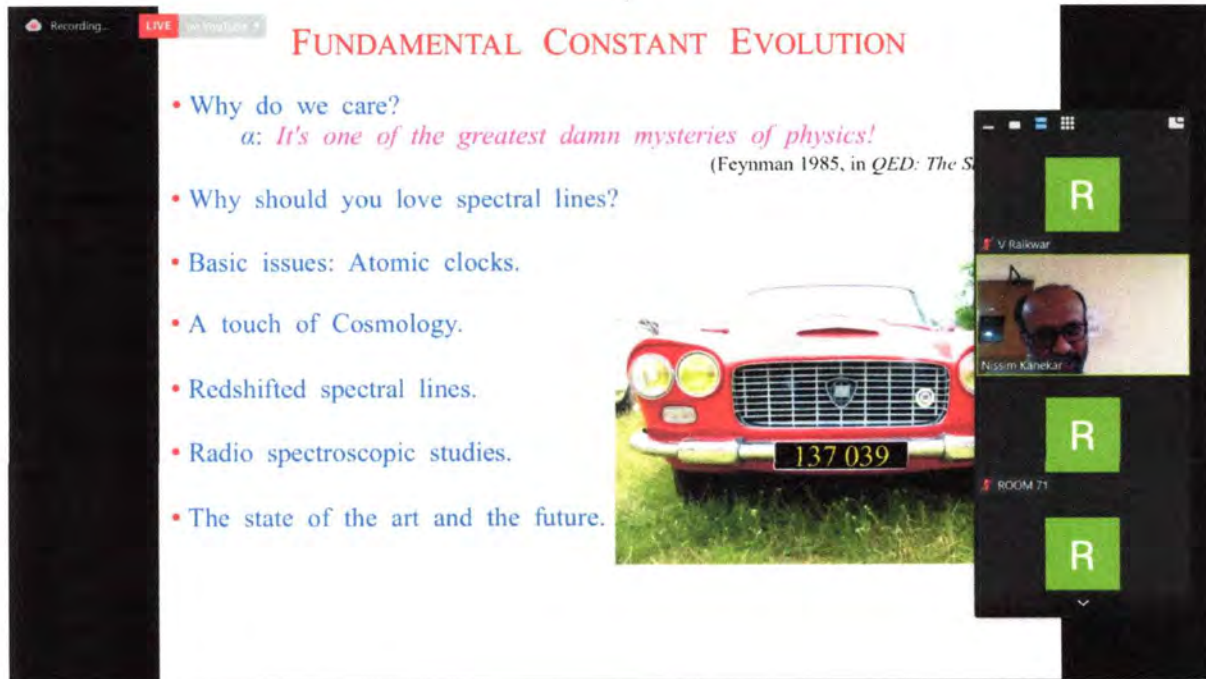
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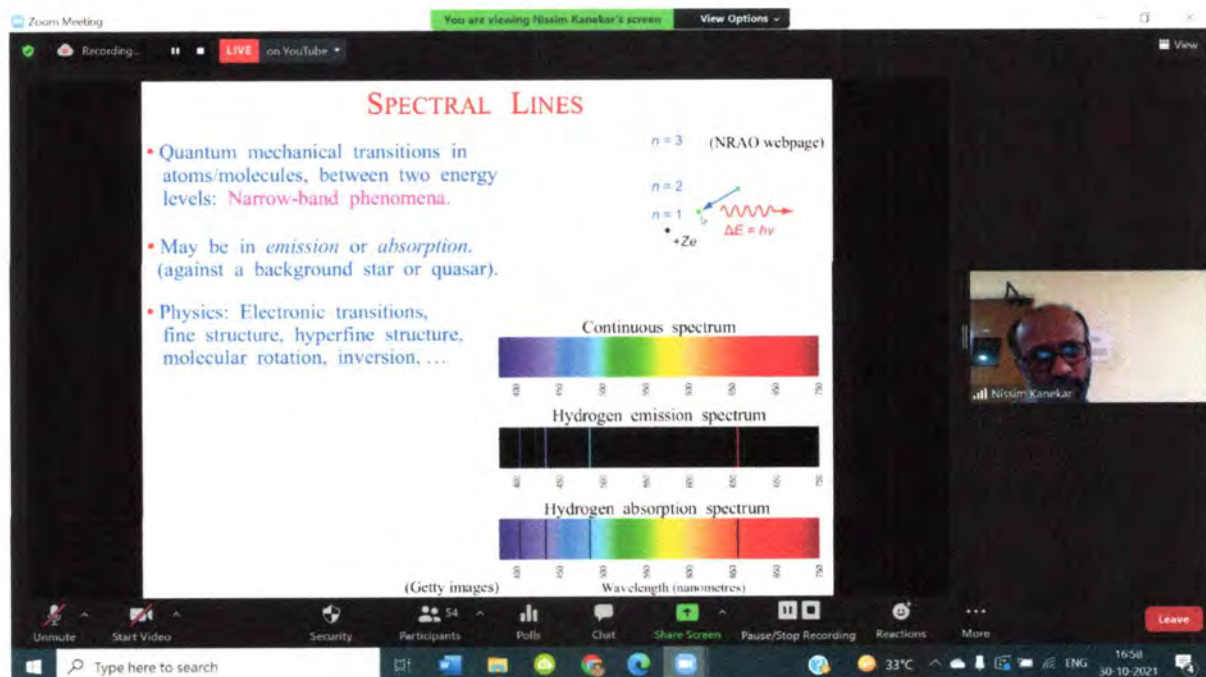
## Photos



**FUNDAMENTAL CONSTANT EVOLUTION**

- Why do we care?  
*α: It's one of the greatest damn mysteries of physics!*  
(Feynman 1985, in *QED: The S...*)
- Why should you love spectral lines?
- Basic issues: Atomic clocks.
- A touch of Cosmology.
- Redshifted spectral lines.
- Radio spectroscopic studies.
- The state of the art and the future.

*(Image of a red classic car with license plate 137 039)*



**SPECTRAL LINES**

- Quantum mechanical transitions in atoms/molecules, between two energy levels: **Narrow-band phenomena**.
- May be in *emission* or *absorption*, (against a background star or quasar).
- Physics: Electronic transitions, fine structure, hyperfine structure, molecular rotation, inversion, ...

*(Diagram showing energy levels n=1, 2, 3 and a transition with ΔE = hν)*

*(Spectral diagrams: Continuous spectrum, Hydrogen emission spectrum, Hydrogen absorption spectrum)*

Wavelength (nanometres)



*(Handwritten signature)*

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Zoom Meeting You are viewing Nasim Kanekar's screen View Options

Recording... LIVE on YouTube

### SPECTROSCOPIC REDSHIFTS

- Can measure a galaxy's redshift from its different spectral lines.

Lyman limit Ly $\beta$  Ly $\alpha$  Lyman forest NV SiIV CIV

Observed Wavelength [Angstroms] (Joe Liske's webpage)

- Galaxies detected today out to  $z \sim 10$  (roughly 13 Gyr ago).

Unmute Start Video Security Participants Polls Chat Share Screen Pause/Stop Recording Reactions More Leave

Type here to search 31°C 17:18 30-10-2021



  
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## List of participants

Name:
Dr Neeta B Srivastava (ROOM 71)
315 - Uneza Shaikh Moinuddin
Devraj
Nissim Kanekar
Adwaitkulkarni
RUQAIYA
214-Abhishek Mishra
207-KHUSHI SHARMA (KHUSHI SHARMA)
243 shaziya
A-118 Vimlendu Yadav
Rani Shaikh
UjalaIndrapal Yadav
Ruqaiya Dalvi
Omkar Yadav
220-Komal gaikwad
219-Leena J. Mayekar.
232_Gopi Vishwakarma
JankiKanojiya
Sandip Hinge
Shubham Yadav
Ujwal Varma
204 MOHD. Adnan Ansari
Vaishnavi Zemse
226 Mithilesh
Kiran Bhagure
realme 3 Pro
A/126
Harish Srinivasan
221-Tarannum Khan (Tarannum Khan)
'- Vivek
Humaid Shaikh
NITISH THAKUR
Karan Mehetare
320 Avinashkumar
262-Nanda Parab (Nanda Parab)
Shrushtishikhare 275
303-Shivam Mishra
Aashay Kadu



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301-Surykant Bind
Anjali Kiran Patel
348_Choudhari rehana (Papa Choudhary)
335- sayyedzeya
(222) JASWANTH PANDEY
saniyasawant
aniruddhashinde
Priya Samanta
Jagdish Hande (Physics PG)
201_Choudhary afreen
237- Omkar Yadav
A/14 Chandan Tiwari
314-Sachin Kumar
215-Hritik Dubey
742_Rajesh Singh
Vyom Kulkarni (A-63 Vyom Kulkarni)
30 (111 Aruba A)
A-7 Asawari Athawale
Raj Prajapati
Sumaiya
362-Vishal Mishra (Vishal Mishra)
242 Rahul Ghadigaonkar
Neelam Gupta
DipikshaGurav
249- shruti shukla
Shivani Vishwakarma
Rohit Chavan roll no.100
302-Aditya .Y
Sachit Upadhyay
206-Nasibun Shaikh
Shaikh shamabano .236
Geeta Pal
Vrushali Sawant
Jitesh Maurya (VR.Jitesh Maurya(Youth Icon)twk)
239 Ragini Singh
222_Aman Yadav
Manali Jagadale
A - 96 Santosh nayak
15 Anand Maurya (Anand Maurya)
Khan Misbah



  
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81 PRABHAT KUMAR
234-Anup
Harsh Yadav
33 - Ashish Shukla
SampadaGaonkar
Vishal
ShubhAmYAdav (248 ShubhAmYAdav)
(031-SY-A) Aliza shaikh
Shweta chaurasiya
khanshajra
Rahul
225 Ashish Anand Prajapati
235_Sabina Ansari (Sabina Ansari)
Yadav PhulendraSatishsingh
Shashank Singh
73 shravankumar
Balpreet
Shweta chaurasiya (A-39 Shweta chaurasiya)



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## Certificates



Hindi Vidya Prachar Samiti's  
**Ramniranjan Jhunjunwala College (Autonomous)**  
Ghatkopar (West), Mumbai : 400086

### Department of Physics

This certificate declares that

## Gopi Vishwakarma

Class : SYBSc Roll No. : 232

has participated in DBT star Activity conducted by Prof. Nissim Kanekar  
"Do the fundamental constants change with time"  
held on 30th October 2021.

  
Dr. Himanshu Dawda  
Principal

  
Dr. Neeta B. Srivastava  
Head, Department of Physics



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Ghatkopar (West), Mumbai : 400086

### Department of Physics

This certificate declares that

## Sachin Kumar

Class : FYBSc Roll No. : 314

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