



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 400086, Maharashtra, INDIA.

Website: www.rjcollege.edu.in

Email: rjcollege@rjcollege.edu.in

Tel No: +91 22 25151763

Fax No: +91 22 25150957

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

Affiliated to UNIVERSITY OF MUMBAI || NAAC Re-Accredited 'A' Grade (CGPA: 3.50)

1st JULY, 2020

NOTICE

The department of physics is organising RJC Physics lecture series in association with IAPT Mumbai Sub RC under DBT star college activity. This activity intends to develop the capacity skills of students and for improving student capability by appraising them of the recent trends in technology. The lecture would be delivered by eminent physicist and would be interactive. the details of the session is available in the brochure. the session would be online on zoom platform.

Session: 2nd July, 2020, 4 pm

Resource Person: Dr Sanjay Sane, National Centre for Biological Science, TIFR Bangalore

Topic : The mechanics of insect flight

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DBT STAR COLLEGE ACTIVITY

RJC Physics Lecture Series 7:

The mechanics of insect flight

Dr. Sanjay Sane, National Center for Biological Sciences, TIFR, Bangalore.

Dr. Sane is Associate Professor at National Center for Biological Sciences. His interests include role of antennal and haltere mechanosensory input in flight control, integration of multi-sensory feedback in flight behaviour, behavioural ecology of insect migration, plant-insect interactions, mound building behavior in termites, plant biomechanics.



2nd July, 2020 Thursday



4.00 pm



Zoom Platform & Live on YouTube: <https://www.youtube.com/rjcollegecourseware>
OR <https://youtu.be/KQPqZyFKStA>

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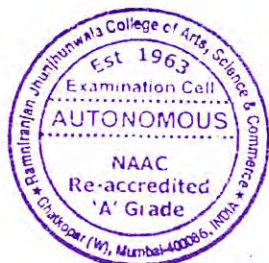
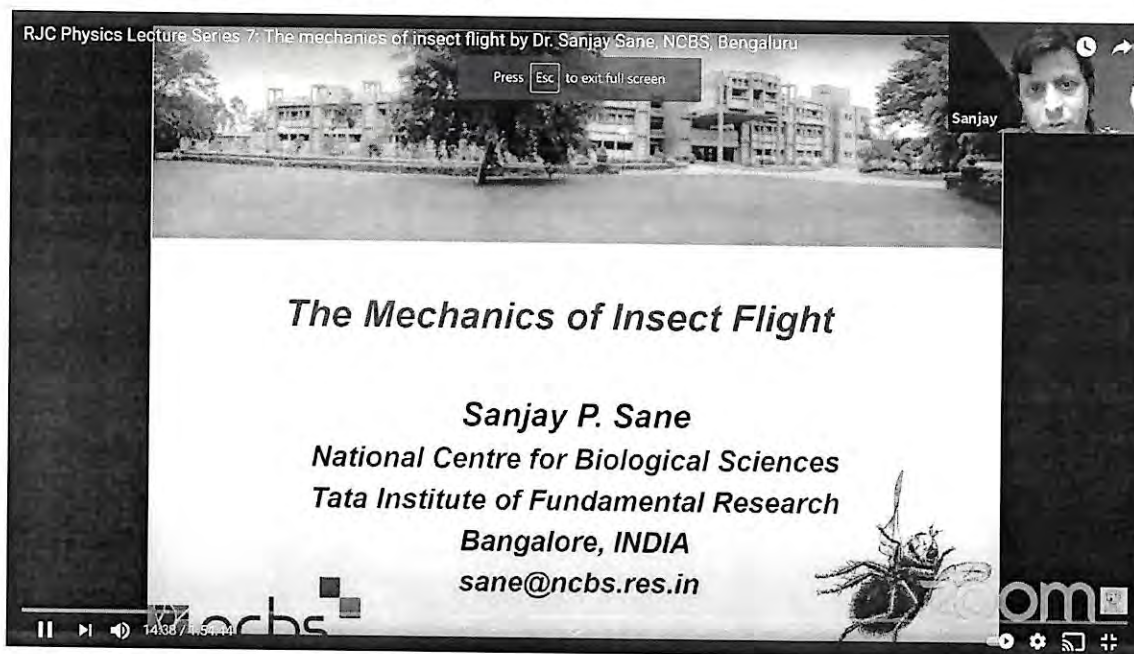
REPORT

Capacity Development and skill enhancement activity organised for improving students capability (Awareness of Trends in Technology)

Dr. Sanjay Sane (NCBS, Bengaluru) - 2 July - The mechanics of insect flight

You Tube link: <https://www.youtube.com/watch?v=KQPqZyFKStA&t=6154s>

Flying insects are among the most common sights in nature, yet in many ways not very well-understood. Both for the speed of their responses and their spectacular endurance, insects surpass most other animals in their ability to fly. Not surprisingly, they are the most successful animals in our evolutionary history. We have all experienced the difficulty in catching or swatting insects, and observed with awe as they migrate over vast areas and long distances. The phenomenon of flight in insects has been a fascinating area of organismal biology for several years. It is also an area which has seen significant contributions from physicists, engineers, neuroscientists, muscle biologists, as well as ecologists and evolutionary biologists. In my seminar, I will describe the recent discoveries on the aerodynamics and biomechanics of insect flight. Specifically, I will focus on how insects tackle the challenge of miniaturization, as well as speed and precision of their responses.




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RJC Physics Lecture Series 7: The mechanics of insect flight by Dr. Sanjay Sane, NCBS, Bengaluru

Miniaturization of body size and evolution of flight

Press Esc to exit full screen

The largest insect ever found:
 Meganeurid dragonfly (extinct)
 From the Carboniferous period
 ~300 Million years ago
 (wing span ~ 65 cm)

Largest extant insect:
 Queen Alexandra's Bird wing
 (wing span ~30 cm)

One of smallest insects:
 Megaphragma mymaripenne
 4800 Neurons, Anucleate!
 Smaller than Paramecium
 (wing span ~ 0.04 cm)

Sanjay

RJC Physics Lecture Series 7: The mechanics of insect flight by Dr. Sanjay Sane, NCBS, Bengaluru

Halteres provide crucial mechanosensory input for flight control in Diptera

Press Esc to exit full screen

A Fly with halteres highlighted. **B** Close-up of a haltere. **C** Microscopic view of the haltere base.

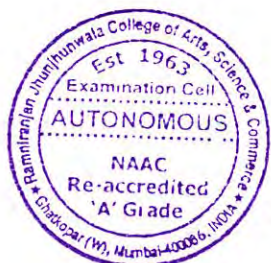
i Microscopic view of the base of the haltere. **ii** Microscopic view of the base of the haltere. **iii** Microscopic view of the base of the haltere.

100 µm, 10 µm, 10 µm

The base of the haltere is covered with fields of campaniform sensilla

Sanjay

Dr. Sanjay Sane



[Signature]

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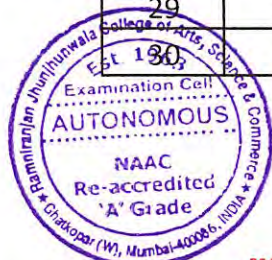
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DEPARTMENT OF PHYSICS

Guest Lecture : "The mechanics of insect flight" on 2nd July, 2020

STUDENTS ATTENDANCE SHEET

SR NO	ROLL NO	CLASS	NAME OF THE STUDENT PARTICIPANT
1	202	TYBSC	ASRAF NISHA A MUMTAJ
2	204	TYBSC	CHAUHAN RAMNARESH RAMAJOR KUSUMDEVI
3	207	TYBSC	DUBEY PRANSHUL JAIPRAKASH MITHILESH
4	211	TYBSC	GUPTA ANILKUMAR LALLURAM RATNADEVI
5	213	TYBSC	GUPTA PRITI PREM SAGAR MUNNI
6	217	TYBSC	KANAUJIYA ANKUSH KAILASH GEETADEVI
7	220	TYBSC	KHADKA RADHIKA KHADKA DEEPAK
8	225	TYBSC	MOURYA ROSHAN MAHAVEER USHA
9	228	TYBSC	PATEL SATYAM CHANDAN ASHA
10	235	TYBSC	SAROJ POOJA RAMASHREY LAKSHMI DEVI
11	239	TYBSC	SINGH ABHISHEKH SANJAY RITA
12	248	TYBSC	YADAV SHUBHAM VINOD DHARM SHEELA
13	256	TYBSC	SHARMA SARASWATI CHETRAJ
14	1	MSC - II - PHY	AGRAHARI MAMTA CHANDRAPRAKASH
15	2	MSC - II - PHY	HARMALKAR KETKI KANTA
16	3	MSC - II - PHY	JESWANI AJAY JAGDISH
17	5	MSC - II - PHY	KARANGUTKAR SIDDHESH AMARDEEP
18	7	MSC - II - PHY	MISHRA SUNITI RAMASHANKAR
19	8	MSC - II - PHY	NAIR SREELAXMI SUDHAKARAN
20	11	MSC - II - PHY	SHAIKH SHARUKH DILSHAD
21	13	MSC - II - PHY	UPADHYAY ANKIT KUMAR OMPRAKASH
22	15	MSC - II - PHY	YADAV RAHUL KAPTAN SINGH
23	3	SYBSC	AZMI SHUMYLA TAMKIN MOHAMMED ZIA MAHJABEEN
24	9	SYBSC	GAUTAM JAIPRAKASH CHINGUD PARVATI
25	18	SYBSC	KHAN ADIBA KHALIL UR REHMAN FOUZIYA
26	31	SYBSC	PANDEY SATYAM SANJAY POONAM
27	42	SYBSC	SHARMA EKTA RAMLALAK MEERA
28	46	SYBSC	SINGH ANURAG OMPRAKASH KANCHAN
29	51	SYBSC	SINGH VIVEK ANIL GEETA
	55	SYBSC	TIWARI SUMIT AVADHESH SUBHADRA



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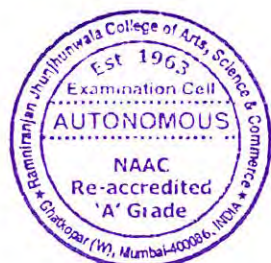
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31	60	SYBSC	YADAV RITA JAYNATH SURYAMATI
32	65	SYBSC	MISHRA ANISH ANUJ AASHIKA
33	71	SYBSC	NERLEKAR AKSHAY SHANKAR SUMITRA
34	80	SYBSC	KHAN MOHAMMAD SALAMUDDIN SHAMSUDDIN SIFTAIN
35	103	SYBSC	JAISWAL SUNIL RAMSUDHI LAISA
36	110	SYBSC	SHAIKH MOHAMMAD AADIL SAGIR AHMED FULBANO
37	119	SYBSC	KAMBLE SHREEKANT ANKUSH SUNITA
38	206	SYBSC	JAISWAL KAUSHAL SUBHASHCHANDRA ANUDEVI
39	210	SYBSC	PAL VIVEK KUMAR RADHESHYAM GUDIYA
40	214	SYBSC	RAI AMAN RAJESH ANITA
41	223	SYBSC	VISHWAKARMA RAHUL KRISHNA SUNITADEVI
42	228	SYBSC	GUPTA ROHAN RAJU SUMAN
43	237	SYBSC	SHAZIYA EJAZ AHMED SHAIKH
44	239	SYBSC	RAI SHEETAL RAJESH

Ramzys



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DBT STAR COLLEGE ACTIVITY

Certificate of Participation


This is to certify that Pal Vivek of SYBSc attended the lecture
The Mechanics of Insect Flight delivered by **Dr. Sanjay Sane** of National Center for Biological Sciences,
TIFR, Bengaluru on 2nd July, 2020



Head, Department of Physics



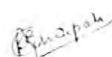
Principal




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