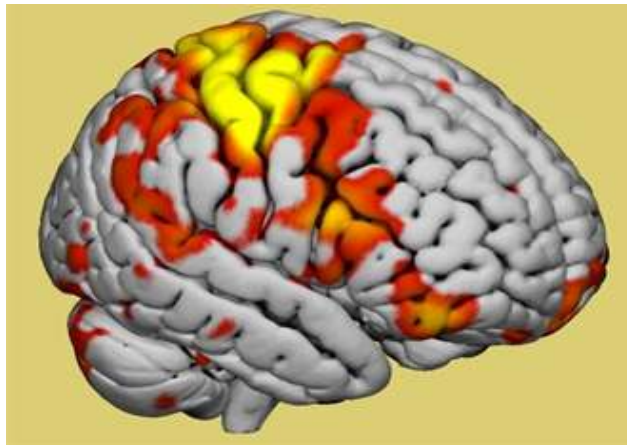




**Department of Sports Science & Yoga
Ramakrishna Mission Vivekananda Educational and
Research Institute (RKMVERI), Belur Math**

**Report on
Symposium and Workshop on 'Advances in Brain & Cognition
Research'**



21-22 January 2023

Organized by-

Department of Sports Science and Yoga

**Ramakrishna Mission Vivekananda Educational and Research
Institute**

(Deemed-to-be-University)

Belur Math, Howrah, West Bengal - 711202

www.rkmvu.ac.in

under the aegis of

UNESCO Chair in Inclusive Adapted Physical Education and Yoga

(ID 1004)





Overview

Brain processes complex information and is a hub for cognitive processes. Cognition is an important aspect of human behavior which includes attention, working memory, decision making etc. Transmission of information through the population of neurons between different anatomical regions of the brain is thought to support brain functions, perception and cognitive processes. However, how precisely these different neural networks support brain functions and cognition in health & diseases is not clearly understood. Recent advances in different cutting edge technologies to examine the brain have furnished novel insights about the organization of neural pathways, functions and their relation to cognition. Understanding of the neural processes related to cognitive functions in competitive sports is also essential. The symposium highlighted recent advances in brain and cognition research and the workshop introduced cutting-edge technologies applied in neuroscience research in vivo.

This program aimed to popularize neuroscience among interested students and encourage them to further pursue research in neuroscience.



Symposium and workshop on

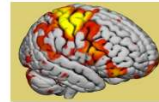
Advances in Brain & Cognition Research



Dr. Sharba Bandyopadhyay,
Assistant Professor,
Department of Electronics
and Electrical
Communication Engg., IIT
Kharagpur
"Studying Autism
Spectrum Disorders
through Mouse
Vocalization
Sequences"



Dr. Supriya Ray,
Assistant Professor
Centre of Behavioural &
Cognitive Sciences,
University of Allahabad
"Pupillary Aperture
Predicts Attention and
Action"



**21 & 22
January 2023**



**in Inclusive
Adapted
Physical
Education
and Yoga**



Dr. Jayanta Roy,
Director of Stroke
Program
Institute of
Neurosciences, Kolkata
"Spectrum of Small
Vessel Disease of
Brain and its
Cognitive Impact"



**Dr. Arpan
Banerjee,**
Scientist V
National Brain
Research Centre,
Manesar, Gurgaon
"Computational
Microscope to
Study
Whole Brain
Network Dynamics
in Health and
Diseases"

Details of Symposium and Workshop

To grow interest in the latest advances in the field of Brain and Cognitive Research and popularizing Neuroscience, initiatives were taken by the Program Co-coordinator Br. Ajatachaitanya with the faculty members Dr. Subhadip Paul and Dr. Arkadeb Dutta in the sports science and yoga department to invite stalwarts in the brain and cognition research in India.

Dr. Sharba Bandyopadhyay, Assistant professor in the Department of Electronics and Electrical Communication, IIT Kharagpur, Dr. Supriya Ray, Associate Professor from Ashoka University in Noida, Dr. Arpan Banerjee, Associate Professor, National Brain Research Center, Manesar, Gurgaon, Dr. Jayanta Roy, Director of the Stroke Program, Institute of Neuroscience, Kolkata were the invited luminaries in this two-day event.

The announcement of the symposium and workshop was posted online in the University website and also circulated in the social media to spread the awareness of the event to the interested participants.

The screenshot shows the RKMVERI website with the following content:

- Header:** RKMVERI MAIN WEBSITE, Department of Sports Science and Yoga, Ramakrishna Mission Vivekananda Educational and Research Institute. (Deemed-to-be-University as declared by MHRD, Govt. of India under Section 3 of UGC Act, 1956)
- Navigation:** HOME, DEPARTMENT, ACADEMICS, ADMISSIONS-2023, PEOPLE, RESEARCH, UNESCO CHAIR, NEWS & EVENTS, CONTACT US.
- Article Title:** Two day Symposium and Workshop on 'Advances in Brain & Cognition Research' – 21-22 Jan 2023
- Metadata:** 0 DECEMBER 1, 2022 | NEWS & EVENTS | 2 COMMENTS
- Text:**
 - Department of Sports Science and Yoga, RKMVERI organises a Two day Symposium and Workshop on 'Advances in Brain & Cognition Research' on 21-22 January 2023.**
 - Brain processes complex information and is a hub for cognitive processes. Cognition is an important aspect of human behaviour which includes attention, working memory, decision making etc. Transmission of information through population of neurons between different anatomical regions of brain is thought to support brain functions, perception and cognitive processes. However, how precisely these different neural networks support brain functions and cognition in health & diseases is not clearly understood. Recent advances in different cutting edge technologies to examine the brain has furnished novel insights about the organization of neural pathways, functions and their relation to cognition. Understanding of the neural processes related to cognitive functions in competitive sports is also essential.
 - The symposium will highlight about recent advances in brain and cognition research and the workshop will introduce cutting-edge technologies applied in neuroscience research in vivo.
 - This program aims to popularize neuroscience among interested students and encourage them to further pursue research in neuroscience.
- Who can attend**
 - Students and faculty members pursuing Neuroscience, Physiology, any other branch of Biological and Medical Sciences, Mathematical Sciences, Engineering and allied disciplines.

The advertisement of the symposium and workshop posted online

The event was open for the students and faculty members pursuing neuroscience, physiology, any other branch of biological and medical science sciences,

engineering and allied disciplines with a nominal registration fee of Rs. 300/- (for students) and Rs. 500/- (others) and with a maximum capacity of hundred participants to join.

Number of Attendees: The opening day of the event on January 21,2022, witnessed the presence of eighty-one registered participants, who were students, research scholars and faculty members notably from the University of Calcutta, University of Kalyani, Institute of Neurosciences, IIT Kharagpur, Rammohan College of Kolkata and the students of RKMVERI.

Inauguration:

The symposium and workshop was inaugurated by the Revered Pro-Chancellor Swami Atmapriyanandaji Maharaj, RKMVERI, in the presence of the invited lecturers, Program Coordinator Br. Ajatachaitanya and the attendees at the Saradananda Hall, RKMVERI. The opening session began at 10'a.m. with the chanting of "*Shanti Mantra*" and success of the event was prayed and set high with a captivating inaugural speech by reverend Pro-Chancellor Swami Atmapriyananda Maharaj, RKMVERI, about philosophy of 'Atmaan' (Self), knowledge on 'Atmaan' and finely threaded with modern day cognition, which was the theme of the event.

The Lectures and the Workshops:

The first day of the event started with two outstanding lectures, one on studying Autism Spectrum Disorders through Mouse Model Vocalization by Dr. Sharba Bandyopadhyay and the other on studying pupillary adjustments as reliable predictors of Attentional and execution mechanisms by Dr. Supriya Ray. The workshops by Dr. Sharba Bandyopadhyay on experimentation techniques in mouse models with 2-photon calcium imaging and by Dr. Supriya Ray on analysis techniques of eye movement parameters using eye tracker were some latest rounds of advanced instrumentation on brain and cognition research that were undoubtedly enriching and educative to the audiences.

The second day of the event was also popularized with two captivating talks from Dr. Jayanta Roy and Dr. Arpan Banerjee. Dr. Jayanta Roy, started the first session with his lecture on the etiology, classification, risk factors and progression of cerebral small vessel diseases and how it impacts normal human cognition. Dr. Ray's lecture along with his decades of clinical experience in Dementia and Stroke was a priceless moment for the audiences to upgrade their knowledge and get aware of their lifestyle related habits controlling cognition. This was followed by another excellent talk delivered online by

Dr. Arpan Banerjee on the latest advancements in analytical methods of human brain imaging to understand its network dynamics under health and diseases.

The post lunch session workshop conducted by in-house faculty members, Dr. Arkadeb Dutta with Dr. Subhadip Paul, was an interesting food for thought for researchers in Sports, how to look at the mental and cognitive aspects of a sports persons during training by capturing and deciphering brain signals with mobile electroencephalography technique.

All these remarkably interesting interactive sessions were highly welcomed with questions from the audiences and their answers from the speakers with high rounds of applause indicated the successful fulfillment of the motive undertaken in the two-day long symposium and workshop on “Advances in Brain and Cognitive Research.”

On the eve of the grand success of the event, the hall full of audiences were fortunate to hear the valedictory notes from respected Swami Japasiddhananda Maharaj, the Head, the Department of Sanskrit & Philosophy, the RKMVERI, .

The attendees received their certificates of participation from respected Swami Japasiddhananda Maharaj. And, lastly the concluding remarks and the vote of thanks was given with an excellent speech by Br. Ajatachaitanya, the Program Coordinator, Department of Sports Science and Yoga, RKMVERI.

The detailed schedule of the symposium and the workshop–

Day 1:

Date	Time	Event	Speakers	Topic
Jan 21,2023	10:00-10:30 hrs.	Inaugural Speech	Swami Atmapriyanandaji Maharaj	
	10:30-11:30 hrs.	Lecture 1	Dr. Supriya Ray, Associate Professor, Ashoka University	“Pupillary Aperture predicts Attention and Action”
	11:30-11:45 hrs.	Tea Break		
		Lecture 2	Dr. Sharba Bandyapadhyay, Assistant Professor, Department of Electronics and Electrical Communication Engg., IIT Kharagpur	“Studying Autism Spectrum Disorders through Mouse Vocalization Sequences”
	12:45-14:00 hrs.	Lunch Break		
	14:00-15:30 hrs.	Workshop 1	Dr. Sharba Bandyapadhyay, Assistant Professor, “Computational Microscope to Study Whole Brain Network Dynamics in Health and Diseases”Department of Electronics and Electrical Communication Engg., IIT Kharagpur	“Concept of <i>In vivo</i> two-photon calcium (Ca ²⁺) imaging”“Computa tional Microscope to Study Whole Brain Network Dynamics in Health and Diseases”
	15:30-17:00 hrs.	Workshop 2	Dr. <i>Supriya Ray</i> , Associate Professor Centre of Behavioral & Cognitive Sciences, University of Allahabad	“Understanding Cognition by Tracking Eyes”-

Day 2: “Computational Microscope to Study Whole Brain Network Dynamics in Health and Diseases”

Date	Time	Event	Speakers	Topic
Jan 22, 2023	10:00-11:15 hrs.	Lecture 3	<i>Dr. Jayanta Roy,</i> Director of Stroke Program Institute of Neurosciences, Kolkata	“Spectrum of Small Vessel Disease of Brain and its Cognitive Impact”
	11:15-11:30 hrs	Tea Break		
	11:30-12:45 hrs.	Lecture 4	<i>Dr. Arpan Banerjee,</i> Associate Professor, National Brain Research Centre (NBRC), Manesar, Gurgaon	“Computational Microscope to Study Whole Brain Network Dynamics in Health and Diseases”
	12:45-14:00 hrs.	Lunch		
	14:00-15:30 hrs.		<i>Dr. Arkadeb Dutta & Dr. Subhadip Paul,</i> Assistant Professors, Department of Sports Science and Yoga, RKMVERI	“Recording Brain Electrical <i>Activities</i> using EEG during exercise”
	15:30-15:45 hrs.	Tea Break		
	15:45-16:00 hrs.	Valedictory Notes and Certificate Distribution - Swami Japasiddhananda Maharaj & Br. Ajatachaitanya		

Luminous Moments of the Symposium and Workshop



Revered Pro-Chancellor Swami Atmapriyananda Maharaj, the RKMVERI, with his gracious presence inaugurating the symposium and workshop.



Revered Pro-Chancellor Swami Atmapriyananda Maharaj, the RKMVERI, felicitating the Honorable speakers, Dr. Sharba Bandyopadhyay and Dr. Supriya Ray.



Dr. Jayanta Roy, Director of Stroke Program, from Institute of Neuroscience, Kolkata, delivering his lecture in stroke research and rehabilitation



Dr. Arpan Banerjee, Associate Professor, National Brain Research Center, delivering his topic on “Computational Microscope to Study Whole Brain Network Dynamics in Health and Diseases”



Dr. Arkadeb Dutta from the Department of Sports Science and Yoga, RKMVERI in workshop session on recording brain waves by EEG during exercise



Swami Japasiddhananda, Head of the Department, the Department of Sanskrit & Philosophy, the RKMVERI, is giving valedictory speech



Certificate distribution to the participants by Swami Japasiddhananda Maharaj, Head, Department of Sanskrit and Philosophy



Br. Ajatachaitanya, Program Coordinator, Department of Sports Science & Yoga, delivering his concluding remarks

The symposium attendees with the faculties of the Department of Sports Science & Yoga



Thank you.
