



# Second National Conference on CONTROL AND INVERSE PROBLEMS (CIP 2019)

March 1-2, 2019

Department of Mathematics, Central University of Tamil Nadu, Thiruvavur.

Register

before February 17, 2019

## TRACKS

- ◆ Control Theory
- ◆ Diffusion Tomography
- ◆ Optimal Control
- ◆ Stochastic Control
- ◆ Regularization Technique
- ◆ Direct and Inverse Problems
- ◆ Numerical Methods and Inverse Problems
- ◆ Numerical Analysis for Optimal Control
- ◆ Finite Element Procedure for Parameter Identification



## Expected Participants

We encourage post graduate students, research scholars, young faculty members from Colleges, Institutes and R & D labs working in the relevant fields of Control and Direct/Inverse Problems.



## Conveners

**N. Barani Balan**

Central University of Tamil Nadu

**S. Gnanavel**

Central University of Kerala

**S. Karthikeyan**

Periyar University

Supported by



**SCIENCE & ENGINEERING RESEARCH BOARD (SERB)  
CENTRAL UNIVERSITY OF TAMIL NADU (CUTN)**



For more informations, please visit <https://sites.google.com/view/cip2019/>

**Science and Engineering Research Board**  
(a statutory body of the Department of Science & Technology, Government of India)

5 & 5A, LGF,  
Vasant Square Mall  
Sector-B, Pocket-5,  
Vasant Kunj,  
New Delhi – 110 070.

**Brief report of the organized event**  
(Financial Assistance to Seminar / Symposia)

Date: **27.12.2018**

**SERB Sanction No: SSY/2018/001201**

1. Name of University under whose auspices the Conference was organized:  
**Central University Tamil Nadu**
2. Title of the Conference:  
**Second National Conference on Control and inverse Problems (CIP 2019)**
3. Duration / Period of the organized event: **March 01-02, 2019 (2 days)**
4. Grant Sanctioned: **₹ 1,50,000/- (Rupees One Lakh Fifty Thousand Only)**
5. **Summary of the event (Max. 1000 Words):**

The Second National Conference on Control and Inverse Problems (CIP 2019) gathered researchers working in the broad fields of control theory and inverse problems, providing a place to discuss current directions, novel methods, and future trends in the field. The conference is a continuation of the First National Conference on Control and Inverse Problems (CIP 2016) held during February 26-27, 2016 at Central University of Tamil Nadu, Thiruvarur. The purpose was to bring experts in Control theory and Inverse Problems to promote the exchange of ideas and discuss their latest research achievements. The conference provided an opportunity to young researchers to know the current state of art in the fields and present their recent research results as well. As, Control Theory and Inverse Problems have become a very active, interdisciplinary and well established research area over the past three decades. The conference covered a wide range of topics mainly concentrating on controllability, stability, optimal control, inverse problem and numerics for ordinary/partial/stochastic/fractional differential equations arising in many applications of Science and Engineering.

This was a two day conference which consisted of 6 plenary lectures, 6 invited lectures and limited number of contributed paper presentations. The conference began as per the schedule at 8:00 a.m. with the registration of selected participants from reputed institutions followed by inaugural session. We had a tightly packed schedule with an inauguration honored by our Vice-Chancellor (in-charge) Prof. T. Sengadir. Dr N Barani Balan, Convener-CIP 2019, Assistant Professor of Mathematics, Central University of Tamil Nadu, welcomed the resource persons, invited speakers and participants and delivered a short notice on what the conference is about. The participants were encouraged to broaden their horizons by discussing with the esteemed resource persons and to ensure that they yield a comprehensive understanding of the core topic in order to employ in their studies/research further. The day kick started with a plenary lecture delivered by Prof. M. Vanninathan (IIT Bombay) entitled "*Calculus of Variations and Applications*". The next plenary lecture started after a small tea break and a photo session. The lecture was presented by Prof. A. K. Nandakumaran (IISc, Bangalore) on the topic entitled "*Homogenization of Optimal Control Problems in Domains with Rapid Oscillating Boundary*" followed by an invited talk by Dr Aiyappan Srinivasan (TIFR CAM, Bangalore) on "*Optimal Control on Rough Domain*". The afternoon session after high lunch began with the plenary lecture by Prof. Venky Krishnan (TIFR CAM, Bangalore) entitled "*An Inverse Problem for the Relativistic Schrödinger Equation with Partial Boundary Data*". The participants were taken to the Department of Mathematics, CUTN for contributed papers session. The session was divided

into two parallel tracks. Dr S. Karthikeyan (Periyar University, Salem) and Dr S. Gnanavel (Central University of Kerala, Kasaragod) were the Chair persons of the parallel sessions wherein experts and scholars presented their views on different topics pertaining to the theme of CIP 2019.

We had a tight schedule of lecture on the Second day as well. The conference began with Prof. K. Balachandran's (Bharathiar University, Coimbatore) talk on "*Solvability of Fractional Partial Differential and Integro-differential Equations*" followed by Dr Asha Dond (IISc, Bangalore) who delivered her invited talk on "*Unified Error Analysis of Finite Element Methods for the Optimal Control Problems Governed by Stokes Equation*". The pre-lunch session consisted of a plenary talk by Dr K. Sakthivel (IIST, Thiruvananthapuram) on "*Trajectory Controllability and Stability of the Swift-Hohenberg Equation*" and an invited talk by Dr L. Shangerganesh (NIT Goa, Farmagudi) on "*Optimization of Nonlocal Pyragas Feedback Controllers for FitzHugh-Nagumo Equation with Time-delay*". In the post lunch session Dr Mail T. Mohan (IIT Roorkee, Roorkee) delivered his plenary lecture on "*Necessary Conditions for Distributed Optimal Control of Two Dimensional Tidal Dynamics System with State Constraints*" followed by Dr S. Karthikeyan (Periyar University, Salem), he presented an invited lecture on "*Controllability of Stochastic Differential Equations*". Evening session after tea comprised of two invited talks by Dr S. Gnanavel (Central University of Kerala, Kasaragod) on "*Optimization Method for Inverse Problems*" and Dr J. Kokila (IIT Palakkad, Kerala) on "*Regularization on Fractional Inverse Parabolic Equations*". Valedictory ceremony was honored by the distinguished speakers and participants. Dr N. Barani Balan, Host Convener of CIP 2019, Central University of Tamil Nadu, concluded the conference with a brief summary, a small interaction with the participants letting them speak about the pros and cons of the Conference, followed by vote of thanks. All the resource person, local organizers, participants were thanked for their support and coordination. Sincere words of gratitude were mentioned to the Science and engineering research board (SERB) for their invaluable financial support which made such an event possible. The presence of a supporting environment provided by the University and the willingness of student volunteers were significant in the successful execution of the conference.

From the participants feedback, it was acclaimed that the conference was well organized and made beneficial by the organizing committee. The conference fulfilled the objectives which were set. Moreover, participants appreciated all the lectures delivered by renowned mathematicians. On enquiring about their experience during the conference, the overall response of the participants was very positive and encouraging. On the whole, this two-day conference was a beneficial experience for the participants as well as the organizers. We are proud that it is absolutely a benchmark for the Department of Mathematics, Central University of Tamil Nadu in its profile. CIP will continue its activities in various other Institutions every year in organizing similar successful programme and contribute in the best way possible in nurturing skills of young scholars who strive to research in Control theory and Inverse problems. By which we hope to see meritorious mathematicians emerging from the crowd of CIP.



(Convener Signature)

#### Participation Information:

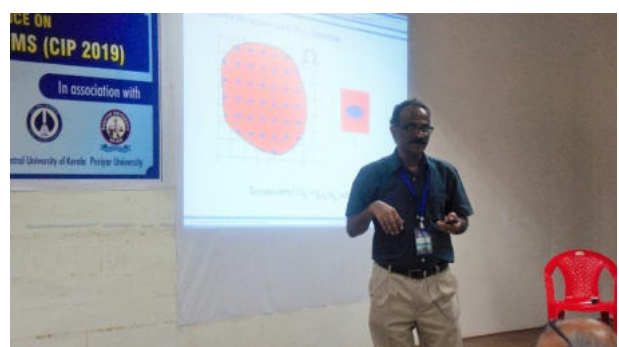
S. No	Participation in the event	Nos.
I.	Key-not speakers	12
II.	Senior Scientist	01
III.	Young Scientist	35
IV.	Postgraduate Students	11
V.	Undergraduate Students	Nil
VI.	Industry persons	Nil
VII.	Other category (Please specify each category)	Nil
		59

**Photographs Section:** Please paste high resolution photographs in given spaces below or may be submitted directly on online / email in JPEG format.

**1. Inaugural Session**



**2. General Photograph**



NOTE- CONSOLIDATED REPORT OF THE APPROVED EVENT MAY BE SUBMITTED ONLINE / EMAIL WITH HIGH RESOLUTION PHOTOGRAPHS PASTED IN THE REPORT OR SUBMITTED DIRECTLY IN JPEG FORMAT.

### 3. General Photograph



*Abu J*  
(Convener Signature)

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