

# Journal of Chennai Academy of Sciences

Volume 3 (2020)

This is a special issue with the contributions from the recipients of  
Young Scientist Awards (2019)

## Contents

Magnetocaloric effect and critical exponent studies in $Mn_{4.5}Ni_{0.5}Sn_3$ alloy - <i>Nagalakshmi R</i>	1 – 20
Development of biopolymer supported composites/beads for nitrate and phosphate removal from water - <i>Ilango Aswin Kumar and Natrayasamy Viswanathan</i>	21 - 36
Our Research Contributions in Epigenetics and RNA Helicases - <i>Arunkumar Dhayalan</i>	37 - 43
A Review of Solid State Transistor Technologies for future low power high speed and high power applications - <i>D. Nirmal</i>	44 - 54
What every computational mathematician should know - <i>Sivaram Ambikasaran</i>	55 - 71

## Note from the Editorial Board

Volume 3 is a special issue of the Journal of Chennai Academy of Sciences, devoted to the contributions received from the recipients of the Young Scientist Awards (2019). Normally, the Awardees are invited to make a presentation of their contributions in the Award function. This year, due to the Corona Pandemic and the extended Lock-down, the Award function could not be held and consequently, it was decided to publish their contributions in a separate issue of the Journal of Chennai Academy of Sciences.

Please find below the list of scientists who won the Young Scientist Awards in various disciplines for the year 2019:

1. Mathematical Sciences (Saraswathy Srinivasan Prize)  
Dr. Sivaram Ambikasaran  
Department of Mathematics  
Indian Institute of Technology (Madras), Chennai- 600 036
2. Physical Sciences (Saraswathy Srinivasan Prize)  
Dr. R. Nagalakshmi  
Department of Physics  
National Institute of Technology  
Tiruchirapalli, Tamil Nadu - 620 015
3. Chemical Sciences (Saraswathy Srinivasan Prize)  
Dr. N. Viswanathan  
Department of Chemistry  
Anna University college of Engineering  
Dindigul, Tamil Nadu - 624 622.
4. Biological Sciences (Saraswathy Srinivasan Prize)  
Dr. Arunkumar Dhayalan  
Department of Biotechnology  
Pondicherry University. Pondicherry - 605 014
5. Engineering and Technology (Dr. M. Anandkrishnan Prize)  
Dr. D. Nirmal  
Department of Electronics and Communication Engineering  
Karunya Institute of Technology and Sciences  
Coimbatore, Tamil Nadu - 641 114