



# Bidhan Chandra College

NAAC Accredited, [ Govt. Sponsored ], ESTD : 1961

Recognized by U.G.C (Govt. of India) and affiliated to Kazi Nazrul University

Asansol – 713304; Dist – Paschim Bardhaman, West Bengal, Ph : 0341-2283020

Visit us: [www.bccollegeasansol.org](http://www.bccollegeasansol.org) ; E. Mail: [bccollege.office@gmail.com](mailto:bccollege.office@gmail.com)

Ref. No.: \_\_\_\_\_

Date: \_\_\_\_\_

## CERTIFICATE OF RESEARCH COLLABORATION

I am pleased to write this certificate of ongoing research collaboration, details of which are as follows,

### Collaboration Between:

1. **Dr. Saumen Chakraborty**, Department of Physics, Bidhan Chandra College, Asansol-713303, West Bengal, India, E-mail: [saumenbcc@gmail.com](mailto:saumenbcc@gmail.com)
2. **Dr. Saumendra Sankar De Sarkar**, Department of Physics, Raniganj Girls' College, Searsole Rajbari-713358, West Bengal, India, E-mail: [ssdesarkar@gmail.com](mailto:ssdesarkar@gmail.com)

**Duration Of Collaboration:** January 2017 to till date

**Details of Collaboration:** Research collaboration related to the study of rich behaviors in isolated and coupled electronic oscillators and their characterization.

### Research Publication under Collaboration:

#### Journal Publications-

1. **S.S. De Sarkar, A. K. Sharma & S. Chakraborty**, "Chaos, antimonotonicity and coexisting attractors in Van der Pol oscillator based electronic circuit". *Analog Integrated Circuits and Signal Processing* (2021). <https://doi.org/10.1007/s10470-021-01934-8>
2. **S. Chakraborty and S.S. De Sarkar** (2020) "Dynamical Behavior of a Van der Pol Oscillator Circuit with Internal Delay", *i-manager's Journal on Circuits and Systems*, 8(2), 16-21. <https://doi.org/10.26634/jcir.8.2.18161>
3. **S. Chakraborty, Manaj Dandapathak, S. S. De Sarkar**, (2021) "Effect of self feedback on mean-field coupled oscillators: revival and quenching of oscillations", *International journal of Chaos and Bifurcation, World Scientific*, Vol. 31, No. 05, 2150078, DOI:10.1142/S0218127421500784
4. **S S De Sarkar, S Chakraborty**, "Nonlinear dynamics of a class of derivative controlled Chua's circuit", *International Journal of Dynamics and Control*, Vol.6, No.2, June 2017, Pages 129-140. DOI 10.1007/s40435-017-0346-2, ISSN 2195-268X

#### Conference Publications:

1. **S. Chakraborty and S. S. De Sarkar**, "Designing a chaotic oscillator using Sallen Key high pass filter", *Proceedings of National Conference on Materials, Devices and Circuits in Communication Technology, 2020 (MDCCT 2020)*, November 29-December 01, 2021, Organised Jointly by IETE Burdwan Sub Centre and Department of Physics, The University of Burdwan, Burdwan, West Bengal, ( ISBN: 978-81-955389-3-5).
2. **S. Chakraborty and S. S. De Sarkar**, "Dynamic Behavior of a Vanderpol Oscillator Circuit with Internal Delay", 2<sup>nd</sup> International Conference on Smart Automation in Computer, Electrical, Electronics and Communication Engineering (ICSA-2021), SRM Valliammai engineering College, Kattankulathur-603203, India, April 10, 2021.
3. **S. Chakraborty and S. S. De Sarkar**, "Regeneration of Oscillation in Chua Circuit under mean field diffusive coupling using derivative control", National Conference On Nonlinear Dynamics and its applications (CNDA-16), Department of Physics, Durgapur Govt. College and Michael Madhusudan Memorial College, Durgapur, 713214, India, February 07-09, 2017.

Saumen Chakraborty  
Dept. of Physics  
Bidhan Chandra College  
Asansol  
(Govt. sponsored)  
ASANSOL-713304  
16.09.22



Principal  
Bidhan Chandra College  
Asansol  
16/09/22