

**NANJIL CATHOLIC COLLEGE OF ARTS AND SCIENCE,  
KALIYAKKAVILAI**

**DEPARTMENT OF MATHEMATICS**

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## ONTO MINUS DOMINATION NUMBER OF SOME SMALL GRAPHS

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### Abstract

A minus dominating function  $f: V \rightarrow \{-1, 0, 1\}$  is said to be an onto minus dominating function if it is onto. The weight of an onto minus dominating function  $f$  on  $G$  is  $f(V) = \sum f(v)$  where the sum ranges over all vertices of  $G$ . The onto minus domination number of a graph  $G$ , denoted by  $\gamma_o^-(G)$ , equals the minimum weight of a set of all onto minus dominating functions on  $G$ . In this paper we discuss the onto minus domination number of some small graphs.



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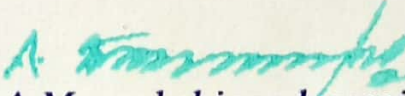
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## Nonsplit Geodetic Number of A Fuzzy Graph

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### Abstract

In this paper, the concept of nonsplit geodetic number  $g_{ns}(G)$ , of a fuzzy graph  $G$  is introduced and its limiting bounds are identified. It is proved that all extreme nodes of  $G$  of the underlying crisp graph  $G^*$  belong to every connected geodetic cover of  $G$ . The nonsplit geodetic number of complete fuzzy graphs and fuzzy cycle graphs are obtained. It is proved that for any pair  $k$ ; nof integers with  $3 \leq k \leq n$ , there exists a connected fuzzy graph  $G: (V, \sigma, \mu)$  on  $n$  vertices such that  $g_{ns}(G) = k$ .

**Keywords :** Fuzzy Graph, Geodetic number, Nonsplit Geodetic number.

### 1. Introduction

Fuzzy graphs are introduced by Rosenfeld[1]. Rosenfeld has obtained the fuzzy analogue of several graph theoretic concepts like paths, cycles, trees and connectedness and established some of the properties [1]. Bhattacharyahas introduced fuzzy groups and metric notion in fuzzy graphs. Bhutani and Rosenfeld have introduced the concept of strong arcs [3] and geodetic distance in fuzzy graphs [4]. The definition of a geodetic basis, median are also given by the same author. Several important works on fuzzy graphs can be found in [2]. In this paper, the concept of nonsplit geodetic number,  $g_{ns}(G)$ , of a fuzzy graph  $G$  is introduced and its limiting bounds are identified. It is proved that all extreme vertices of  $G$  of the underlying crisp graph  $G^*$  belong to every connected geodetic cover of  $G$ . The nonsplit geodetic number of complete fuzzy graphs and fuzzy cycle graphs are obtained.

### 2. Preliminaries

Let  $G = (V, E)$  be a graph with vertex set  $V(G)$  and edge set  $E(G)$ . Fuzzy graph theory has several applications in various fields like clustering analysis, database theory, network analysis, information theory etc. In this section , some basis aspects that are necessary for this paper are included.

#### 2.1. Definition

A fuzzy set is characterized by a membership function  $\sigma$  mapping the elements of the domain  $V$  to the unit interval  $[0,1]$ . That is,  $\sigma: V \rightarrow [0,1]$ . Thus a fuzzy set  $\sigma$  in  $V$  may be represented as a set of ordered pairs of a generic element  $u \in V$  and its grade of membership  $\sigma = \{\sigma(u) / u \in V\}$ .





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## 28. Nonsplit Geodetic Parameters of Some Special Graphs

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**Abstract:** Let  $G$  be a graph. If  $u, v \in V(G)$ , a  $u - v$  geodesic of  $G$  is the shortest path between  $u$  and  $v$ . The closed interval  $I[u, v]$  consists of all vertices lying in some  $u - v$  geodesic of  $G$ . For  $S \subseteq V(G)$  the set  $I[S]$  is the union of all sets  $I[u, v]$  for  $u, v \in S$ . A set  $S$  is a geodetic set of  $G$  if  $I(S) = V(G)$ . The cardinality of a minimum geodetic set of  $G$  is the geodetic number of  $G$ , denoted by  $g(G)$ . In this paper, we study the nonsplit geodetic number  $g_{ns}(G)$  of some graphs. The set  $S \subseteq V(G)$  is a nonsplit geodetic set in  $G$  if  $S$  is a geodetic set and  $\langle V(G) - S \rangle$  is connected, nonsplit geodetic number  $g_{ns}(G)$  of  $G$  is the minimum cardinality of a nonsplit geodetic set of  $G$ . In this paper, we computed nonsplit geodetic number of Helm graph, Friendship graph, Ladder graph, Circular Ladder graph, Barbell graph, Gear





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# Non Split Geodetic Sets and Non Split Geodetic Polynomial of Spider Graph

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## Abstract

Let  $G$  be a graph. The set  $S \subseteq V(G)$  is a nonsplit geodetic set in  $G$  if  $S$  is a geodetic set and  $\langle V(G) - S \rangle$  is connected. Let  $\mathcal{N}_s(S_p, i)$  be the family of all non split geodetic set of a spider  $S_p$  with cardinality  $i$ , and let  $n_s(S_p, i) = |\mathcal{N}_s(S_p, i)|$ . In this article we construct  $\mathcal{N}_s(S_p, i)$  and obtain a recursive formula for  $n_s(S_p, i)$ . With the recursive formula, we investigate the nonsplit geodetic polynomial of spider  $N_s(S_p, x) = \sum_{i=g_{ns}(G)}^{n-1} n_s(S_p, i)x^i$  and obtain some properties.

**Keywords:** Non split geodetic set, non split geodetic number, non split geodetic polynomial.



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## THE TOTAL GEODETIC DOMINATION NUMBER OF A GRAPH

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### ABSTRACT

In this chapter the concept of the total geodetic domination number of a graph is introduced. Also, total geodetic domination number of some special graphs like friendship graph and windmill graph are studied. Also, in this paper the total geodetic domination number of path on  $n$  vertices and the wheel graph are studied. It is shown that for every three positive integers  $a$ ,  $b$  and  $c$  such that  $2 \leq a \leq b \leq c$ , there exists a connected graph  $G$  of order  $p$  with  $g(G) = a$ ,  $\gamma_g(G) = b$  and  $\gamma_{gt}(G) = c$ . Also it is shown that for any two positive integers  $m, p$  with  $3 \leq m \leq p$  then there is a connected graph of order  $p$  such that  $\gamma_{gt}(G) = m$ .

**Keywords:** Geodetic set, geodetic number, Total geodetic dominating set, Total geodetic domination number.

**AMS subject Classification:** 05C12.

### INTRODUCTION

By a graph  $G = (V, E)$  we consider a finite undirected graph without loops or multiple edges. The order and size of a graph are denoted by  $p$  and  $q$  respectively. For the basic graph theoretic notations and terminology we refer to Buckley and Harary[3]. For vertices  $u$  and  $v$  in a connected graph  $G$ , the distance  $d(u, v)$  is the length of a shortest  $u$ - $v$  path in  $G$ . A  $u$ - $v$  path of length  $d(u, v)$  is called a  $u$ - $v$  geodesic. A geodetic set of  $G$  is a set  $S \subseteq V(G)$  such that every edge of  $G$  is contained in a geodesic joining some pair of vertices in  $S$ . The edge geodetic number  $g_e(G)$  of  $G$  is the minimum order of its edge geodetic sets.

The neighborhood of a vertex  $v$  is the set  $N(v)$  consisting of all vertices which are adjacent with  $v$ . A vertex  $v$  is an extreme vertex if a subgraph induced by its



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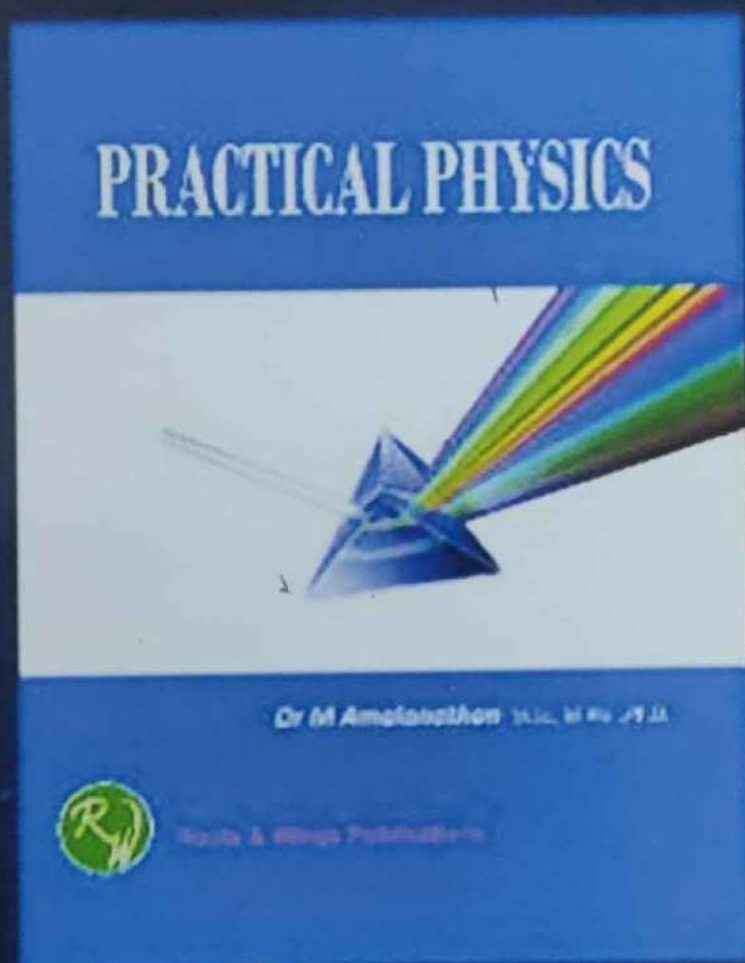
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# Programming in C++

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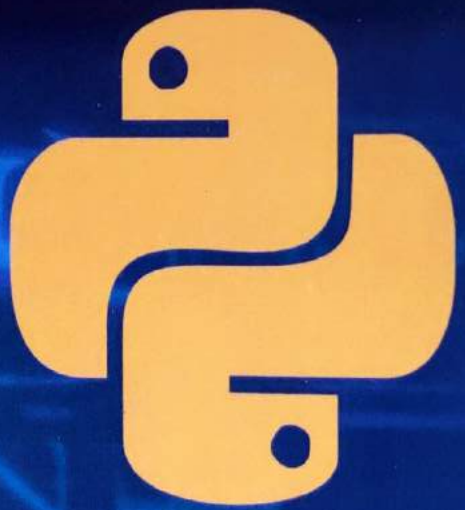
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**Proceedings of the  
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## **Factors Influencing Consumers' Buying Behaviour of Honda Motors with Special Reference to Kanyakumari District**

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### **Abstract**

Consumers buying behaviour is a process by which consumers identify their needs, collect information, evaluate alternatives, and make the purchase decision. It is a series of choices made by a consumer prior to making a buying that begins once the consumer has established a willingness to buy. The consumer must then decide where making the purchase, when making the buying, how much to spend and what method of payment will be used. The marketer attempts to influence each of these decisions by supplying information that may shape the consumers evolution. The six stages of the consumers buying behaviour process are Problem Recognition, Information search, Evaluation of alternatives, Purchase Decisions, Purchase, Post- Purchase evaluation. This project focuses on finding the various determinants of consumer buying behaviour and to construct model for consumer buying behaviour related to purchase of two wheelers. A descriptive research is carried out with a specific objective and it results in definite conclusions. The survey conducted from 120 respondents and used convenience sampling method. The tools used for data analysis are percentage analysis, ranking method, cluster analysis and ANOVA. By analysis it is found that most of the consumers strongly agree with brand loyalty as the consumer buying behaviour and the decision factors also plays a major role in consumer buying behaviour. This enriches the showroom in achieving the goals and objectives.

**Keyword:** Buying behaviour, Determinants of buying behaviour.



## **Efficiency Enrichment of Faculties in Self Financing Arts and Science Colleges in Kanyakumari District**

**G. Rajesh Babu<sup>1\*</sup> and G. Jenit Hanson<sup>2</sup>**

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### **Abstract**

Every education institution, higher management consistently looks for different ways of evaluation and development of their faculty members. Today, a faculty involved in many activities such as planning and updating the curriculum, developing learning environment, facilitating discussion, creating interactive environment, preparing tests, setting assignment, providing feedback and proper counseling of students. This study focuses on efficiency enrichment in self financing arts and science colleges in Kanyakumari District.

The objectives are to identify the specific factors which play a major role and challenges of efficiency enrichment of faculty members. This study adopted descriptive research design. The survey was conducted in 83 faculty members of 16 self financing arts and science colleges and used stratified random sampling method. The primary source comprised of information gathered from the respondent through questionnaires. Chi square test is used in tools for analysis. The major findings are, the self financing faculties are not participating in the efficiency enrichment programs they would not have any direct impact on their API score. They also felt the financial burden and struggling to pay the registration fees.

Many self financing colleges did not grant leaves for faculties to participate in such efficiency enrichment programs. The major suggestions are self financing colleges could work out a competitive salary structure, which is flexible, experience and knowledge gained prior to joining the present institution. Managements unintentionally try to sustain the existing culture due to a lack of vision of how to successfully bring about change. Faculties should build competencies of learners through best pedagogic practices and also contribute to research. Policy makers in education have an important responsibility of creating policy framework for effective functioning of the institutions. If all these steps are followed in the true spirit then the envisioned higher education institute will turn into a reality.

**Key words:** Efficiency enrichment, evaluation, implementation.

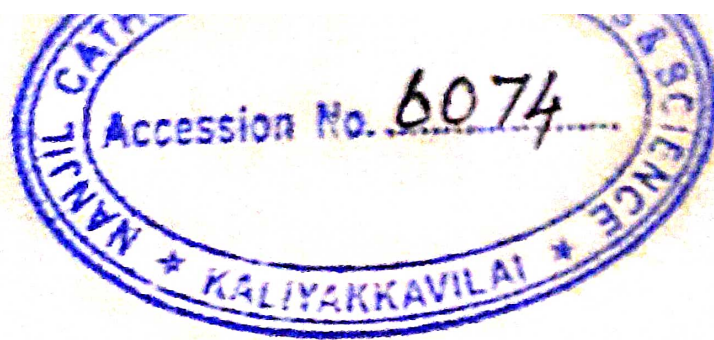


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To augment his role as a Roman catholic priest is immense; he is a very good Musician. He is a very good Singer, Guitarist and Keyboardist. He is a very good composer who released number of Tamil audio cassettes to promote spiritual and social life of humanity and to name few: Uravukkaha, Uravin Ozhi, Uravalaikal, Kalvari Kaayankal, Uravaalayam, Uravoviyam, Uravin Oyire, Uravin Uthayam and Uravennum Nathiyile. Rev. Fr. Dr. Maria Rajendran is an able administrator and a visionary and proved his mettle as he took the role of Managing Director of Nanjil Milk Plant for six long years and promoted it as one of the very successful profit making unit by meticulous planning, comprehensible administration, innovative ideas and dedicated service and which fetch him the dividend to the extent of carrying out various welfare projects for the women and outreached. Rev. Fr. Dr. Maria Rajendran is basically a missionary and a futurist and has initiated number of academic institutions; which are now successfully run and cater to the educational needs of the poor and downtrodden. He took initiative and established Trinity CBSE School at Chithirancode, Nanjil CBSE School at Vazhuthalampallam and Nanjil Catholic College of Arts and Science at Kaliyakkavilai, Kanyakumari District.



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He is presently the Chairman, Govt. Child Welfare Committee for Madurai and Theni Districts with the capacity of First Class Judicial Magistrate to adjudicate cases under Juvenile Justice Act 2006. Currently he is doing research related to children at risk and implementation of child protection programmes by NGO's. He has recently been bestowed with 'Honorary Award' for the year 2011 by the internationally reputed organisation – International Society for the Prevention of Child Abuse and Neglect, (ISPCAN), United States of America, for his contributions on Child Protection. He is an approved guide for Doctoral studies in Social Work in Bharathiar University, Coimbatore and M.S. University, Tirunelveli for guiding scholars.

He has published books on *Women Criminals in India* (Anmol Publications, New Delhi), *Community Action* (Himalaya Publications, Mumbai), *Child Trafficking* (Kanishka Publications, New Delhi), *Integrity* (Kanishka Publications, New Delhi), *Rural Development: Concept and Approaches* (Rawat Publications, Jaipur), *Contemporary Social Development Paradigm*, (Authorspress Publishers, New Delhi), *Thoughts and Practices of Social Transformation*, (Authorspress Publishers, New Delhi) and *Professional Social Work Practice* (Authorspress Publishers, New Delhi). He is actively engaged in research and consultancy work to various development agencies to undertake research and related activities. His course on NGO Management has been approved by the University Grants Commission, New Delhi and offered to students of all disciplines.

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Time : 10.30 a.m. to 12.30 p.m

Parallel Session V : Professional Social Work Practice in the Crisis Situation  
(Natural Disasters / Pandemics / Financial Uncertainties)  
Link : <https://zoom.us/j/6371860819?pwd=Zi9iT2k0aGMzcDFoZzROZEFWVC9Cdz0>  
Meeting ID : 637 186 0819  
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**Session Coordinator** : **Dr. SAM DEVA ASIR R. M**, Assistant Professor

**Chair Person** : **Dr. J.M ARUL KAMARAJ**

Assistant Professor of Social Work  
Loyola College, Chennai

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## THE IMPORTANCE OF MENTAL HEALTH AMONG SOCIAL WORKERS WORKING DURING THIS PANDEMIC CRISIS AT CHENNAI.

Martina Tigga<sup>1</sup> and Francis Divakar JP<sup>2</sup>

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### Abstract

Mental health is one of the most important factors in an individual's life. It is interlinked with all other aspects such as an individual's physical and emotional health, work life, relationships etc. Any disruptions in one of these aspects can affect all the other factors. It refers to the condition of being mentally and emotionally sound that is characterized by the absence of any mental illness and by adequate adjustment especially as reflected in feeling comfortable about oneself, positive feelings about others, and the ability to meet the demands of daily life (Merriam-Webster 1828). With the present situation of Covid-19 it has taken a toll on most of our mental health. In the context of the present situation with shortage of adequate medical utilities, massive spike in Covid-19 cases around the country, as well as the mismanagement of the government regarding this situation, social work professionals along with other professionals have been working continuously to help the people who are in desperate need of help. The amount of work and commitment that this period demands especially in the part of a social work profession can affect their mental health to a great extent. Therefore this study aims to examine the importance of mental health among Social Workers working during this pandemic crisis. For this study, the researcher used descriptive and quantitative research method. 30 samples for the study were collected through convenient sampling method. This Study will help us to understand mental health aspect of social workers which in turn help us to know more about the difficulties faced by people who are helping and supporting others.

**Keywords:** *Mental Health, Social worker, Pandemic*

ID:B2PSW08

## DIGITAL GAMING BEHAVIOR AND ITS ASSOCIATIONS WITH COVID 19 PANDEMIC

Ponni S Ph.D<sup>1</sup> and Maria Antony Raj M Ph.D<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Social Work, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Tamilnadu-629 153

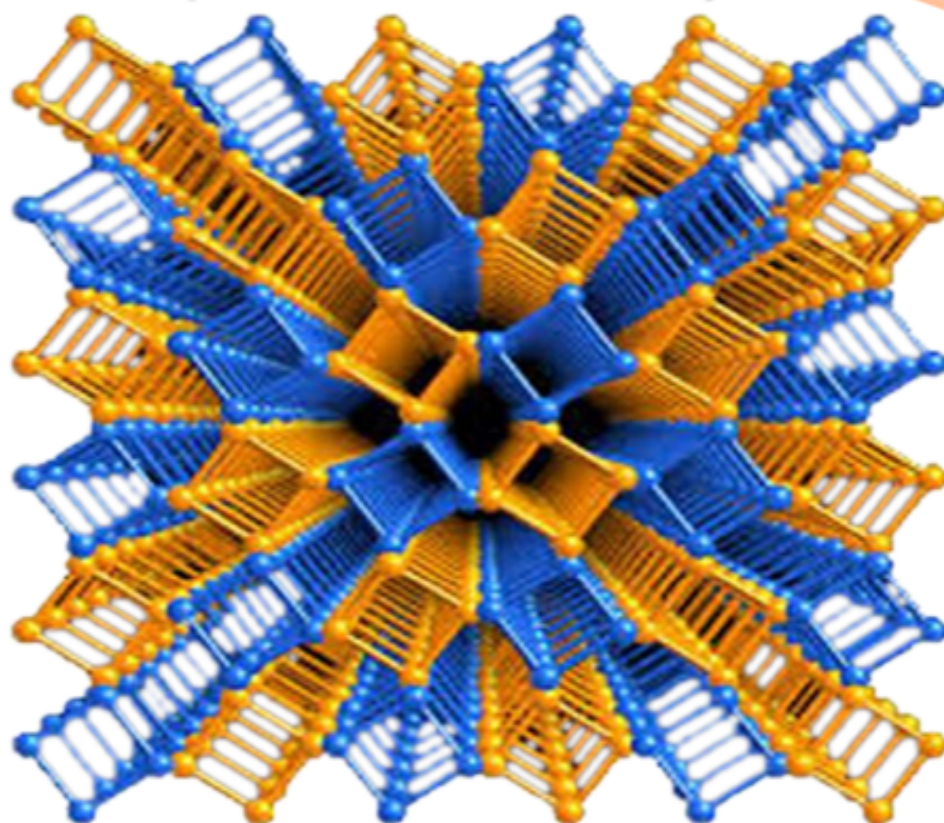
<sup>2</sup>Assistant Professor, Department of social work, Kalasalingam Academy of Research and Education, Krishnankoil – 626126

### Abstract

The novel Coronavirus 2019 (COVID 19) pandemic has changed the daily routine life all over the world. India is devastating the second Wave of COVID 19. To combat, the government of India followed many public health measures such as quarantine, lockdown protocols, social distancing, promoting healthy lifestyles and self-isolation policies etc. As a consequence, the measures have led to occupational and educational disruption and psychological distress among the youth. bring the lockdown pandemic situation and also explore the association of components such as hours of gaming per day, changing daily routine, psychological problems with the lockdown period of COVID 19. Conclusion: Even though students may think digital gaming can be healthy way to relieve from stress and changing mood especially during lockdown but excessive engagement in digital gaming leads to developing unhealthy daily routine.

**Keywords:** *COVID 19, Gaming behavior, Digital Gaming, Daily routine, Psychological Problems.*

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**CONTRIBUTED PAPERS**

1. Growth and optical analysis of 4-dimethyl amino benzaldehyde-2,4-dinitroaniline single crystals (**S. Abila<sup>a</sup>**, **R.P.Jebin<sup>a\*</sup>**, **T.Suthan<sup>b</sup>**)
2. Studies on optical, thermal and mechanical properties of 2,4-dihydroxyacetophenone single crystal (**P.P. Abirami Priya<sup>a,e\*</sup>**, **T. Suthan<sup>b,e</sup>**, **S. Abraham Thambi Raja<sup>c,e</sup>**, **V. BenaJothy<sup>d,e</sup>**)
3. Variation of solar wind parameters observed during solar cycle 24 (**Abisha S Santham<sup>1\*</sup>** and **A. Iren Sobia<sup>2</sup>**)
4. DFT computations and spectroscopic analysis of a1-(4-CHLOROPHENYL)METHYL]3-PHENYLUREA fungicide (**W.Abisha<sup>1</sup>**, **D.Aruldas<sup>1</sup>**, **I.Hubert Joe<sup>2</sup>**)
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6. Electronic properties and NBO analysis on (RS)-3-(3, 5-Dichlorophenyl)-5-methyl-5-vinyloxazolidine-2,4-dione (**E.S.Ashlin<sup>a\*</sup>**, **P.R.Babila<sup>b</sup>**, **G.Edwin Sheela<sup>a</sup>**)
7. Spectral and structural studies of 3-Bromophenyl Methoxy Methylurea (**P.R.Babila<sup>a</sup>**, **E.S.Ashlin<sup>b</sup>**, **G.Edwin Sheela<sup>c\*</sup>**)
8. Investigation on Antibacterial and Nonlinear Optical properties of hexa aqua copper (II) toluene-4-sulfonate (PTSC) single crystals (**J. Beena<sup>a</sup>**, **A.S.Jebamalar<sup>b\*</sup>**)
9. Green synthesis of MgO and Ag-MgO nanocomposite using Catharanthus Roseus leaf extract for photocatalytic and biomedical application. (**Benisha.R<sup>1</sup>**, **Jeni James.J<sup>2</sup>**, **Amalanathan.M<sup>2</sup>**)
10. Single crystal growth, x-ray diffraction, vibrational studies and optical properties of p-nitrophenol sodium sulphate (pnss) single crystals (**S.S. Bersha<sup>a</sup>**, **A. Rathika<sup>\*</sup>**)
11. Structural, Effects of hydrogen bonding(C-H...O and C-H...N), FMO, MEP and molecular docking analysis of N-(4-Bromophenyl)-1-(2-nitrophenyl)methanimine (**Bravanjalin Subi E<sup>1,2</sup>**, **D.Aruldas<sup>2</sup>**)
12. Synthesis of silver nanoparticles using Syzygiummalaccense fruit extract and evaluation of their catalytic activity and antibacterial properties (**Herbin Basalius H<sup>a</sup>**, **Amalanathan. M<sup>b\*</sup>**, **Maria Lenin.M<sup>c</sup>**)
13. Structure of sun's magnetic field during polar reversal phase (**Iren Sobia. A<sup>1</sup>** and **Bidhu S S<sup>2</sup>**)



14. Vibrational spectroscopic characterization, DFT studies and structural investigations of N-(2-Hydroxybenzylidene)-2-Iodoaniline (**D.Jayareshmi<sup>1,\*</sup>**, D.Aruldas<sup>2,\*</sup>)
15. Vibrational and Optical Studies of 3,4,5-trimethoxybenzaldehyde single crystals for NLO applications (**R.P. Jebin<sup>a</sup>** and T. Suthan<sup>b</sup>)
16. Vibrational spectral investigation, DFT computational studies and charge transfer interactions analysis of l-lysine monohydrate (**T. Brintha<sup>1</sup>**, J. Jeni James<sup>2</sup>, P.J. Jegan Babu<sup>3</sup>, **M. Amalanathan<sup>4</sup>**)
17. Structural, computational, C-H...O/N-H...O hydrogen bonding, homo-lumo, mesp and nbo analysis of n-2(hydroxy phenyl) acetamide (**M.Jini pramila<sup>1</sup>**, **D.Arul Dhas<sup>2,\*</sup>**)
18. Single crystal growth and optical properties of glutaric acid doped potassium hydrogen phthalate single crystals (**A. Rathika<sup>a</sup>**, R.Ganapathi Raman<sup>\*</sup>)
19. Effect of metal doping on the properties of SnO<sub>2</sub> nanoparticles (**T.Regini Das<sup>1, 2</sup>**, M. Meena<sup>3,\*</sup>)
20. Periodic variations of sunspot activities in 24<sup>th</sup> solar maximum (**Mariya Shaniya.S<sup>1\*</sup>**, Iren Sobia.A<sup>2</sup>)
21. Synthesis and optical characterization of creatinium 5- sulfosalicylate (**S.S.Sherlin<sup>a</sup>**, C.Christal Vasanthi<sup>b\*</sup>, S.Sindhusha<sup>b</sup>)
22. Theoretical and spectroscopic studies of orotic acid (**S.Sijana<sup>1</sup>**, M. Amalanathan<sup>2</sup>)
23. Crystal growth, XRD and vibrational studies of piperazine p-nitrophenol (ppn) single crystals (**R.Suja<sup>a</sup>**, A.Rathika<sup>\*</sup>)
24. Structural characterization of Zn and Fe doped aluminium oxide nanoparticles prepared by co-precipitation method (**R.Winston<sup>(1)</sup>**, **T.R Jeena<sup>(2)</sup>**)
25. Synthesis and Characterization of Cu-Doped ZnSe Nanoparticles for Photocatalytic Activity (**V.Beena<sup>1</sup>**, S. L. Rayar<sup>2</sup>, S.Ajitha<sup>1</sup>)
26. Synthesis and structural characterization of zinc doped magnesium oxide (**B.C. Abhinisha<sup>(1)</sup>**, **T.R Jeena<sup>(2)</sup>**)
27. XRD characterization of zinc oxide (ZnO) nano particles prepared by solution based method (**<sup>1</sup>Abhirami.U.M;** **<sup>2,\*</sup>Murugavel.S**)

28. DFT computational studies on 1 acetyl-2-(4-butoxy-3-methoxyphenyl) cyclopropane (**S. T. Aslin Priya**<sup>1</sup>, J.Jeni James<sup>2</sup>, **M. Amalanathan**<sup>3</sup>)
29. Theoretical computation of 2-chloro-3-nitro toluene using turbomole software (**J. S. Aswin**\* and T. Asenath Benitta)
30. Synthesis and structural characterization of magnesium doped aluminium oxide nanoparticle (**S. Babisha**<sup>(1)</sup>, **T.R Jeena**<sup>(2)</sup>)
31. Impact of Charge Interaction, H-Bonding Elucidations by Structural and Biological Activity of Diammonium Hydrogen Orthophosphate (**G.Bagavathi Sankar**<sup>1</sup>, D.Usha<sup>2</sup>)
32. FTIR characterization of ZnO nano particles prepared by solution based method (**Belbiya.R ; Murugavel.S**)
33. Exploring the Covalent, Non-Covalent interactions and Pharmacokinetics properties of the Antibacterial compound 4-Dimethylaminopyridinium Salicylate Monohydrate (**J. D.Deephlin Tarika**<sup>a</sup>, R.S. Bemina<sup>b</sup>, T. Joselin Beaula<sup>c\*</sup>)
34. Structural, Electronic properties and Docking Analysis of Antifungal Molecule MorpholiniumPerchlorate -A DFT Approach (**C.DaboraVincy**<sup>a</sup>, T. Joselin Beaula<sup>b\*</sup>)
35. Growth and XRD analysis of pure and dye doped L- threonine single crystal in the ratio 1:0.008 (**K. Athira**<sup>(1)</sup>, **S.Antony Dominic Christopher**<sup>(2)</sup>)
36. Coronal holes and coronal mass ejections during three phases of solar cycle 24 (**Dhaiya. M.S**<sup>1\*</sup>, Iren Sobia.A<sup>2</sup>)
37. Molecular Optimization and NCI analysis of Anti-Viral Molecule Diaqua Aspartate Zinc (Ii) Monohydrate (**X. D. Divya Dexlin**<sup>a</sup>, T. Joselin Beaula<sup>b,\*</sup>)
38. Experimental and Theoretical Investigation on L-PhenylalanineL -phenylalaninium malonate (**N.F.Febi Frederic**<sup>a,\*</sup>, S.Sindhusha<sup>b</sup>)
39. DFT studies, structural determination, chemical properties and topological analysis of 1 acetyl-2-(4-ethoxy-3-methoxyphenyl) (**G.M. Geeshma**<sup>1</sup>, J. Jeni James<sup>2</sup>, **M. Amalanathan**<sup>3</sup>)
40. Density functional theoretical approach on the molecular structure of (2-chlorophenyl) – (4-fluorophenyl) (pyrimidin-5-yl) methanol (**Godwini R**<sup>1</sup>, Clemy Monicka J<sup>2\*</sup>, Grace Victoria S<sup>3</sup>)
41. Spectroscopic and Structural Investigations on Acethyl 2(3-methoxy -4 propoxy pheny)by FTIR, NBO and Topological analysis (**Jebina Rose.J**<sup>1</sup>, **Amalanathan.M**<sup>2\*</sup>, Benisha R<sup>3</sup>.)



42. Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.004 (**B. Jency Paul**<sup>(1)</sup>, **S.Antony Dominic Christopher**<sup>(2)</sup>)
43. Synthesis and structural characterization of Fe doped aluminium oxide nanoparticles (**P. Jeniba**<sup>(1)</sup>, **T.R Jeena**<sup>(2)</sup>)
44. FTIR characterization of TiO<sub>2</sub> nano particles prepared by sol-gel method (**Jenish.J.P,** **Murugavel.S**)
45. Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.006 (**Jinsha Grace.S.V**<sup>(1)</sup>, **S.Antony Dominic Christopher**<sup>(2)</sup>)
46. Synthesis and structural characterization of Zn doped aluminium oxide nanoparticles (S.S. **Joji Thomas**<sup>(1)</sup>, **T.R Jeena**<sup>(2)</sup>)
47. UV Spectroscopic study of titaniumdioxide nano particles prepared by sol-gel method (**Josephin Darling J,** **Murugavel S**)
48. Evaluation of Sodium salt of Orotic acid drug for biological application using DFT studies, HOMO-LUMO and topological analysis (**Malavika.S**<sup>1</sup>, **Amalanathan.M**<sup>2\*</sup>, Benisha R<sup>3</sup>)
49. Studies on the structural, optical, mechanical and non linear optical activity of creatinium hydrogen oxalate monohydrate single crystal (**Monisha S S**<sup>a,b</sup>, S Jeslin Sunitha bai<sup>b</sup>)
50. Investigations on the structural and optical properties of creatinium-p-toluene sulphonate (**Nifana N**<sup>a</sup>, Anitha Hudson J<sup>b\*</sup>, Sindhusa S<sup>b</sup>)
51. Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.002 (**Nivitha N**<sup>(1)</sup>, **S. Antony Dominic Christopher**<sup>(2)</sup>)
52. Synthesis and structural characterization of Fe doped magnesium oxide (**S.R. Regi**<sup>(1)</sup>, **T.R Jeena**<sup>(2)</sup>)
53. XRD Characterization of titaniumdioxide nano particles prepared by sol gel method (**Reshma M.B,** **Murugavel.S**)
54. DFT Studies and topology analysis of 1 acetyl -2(4 benzyl0xy-3 methoxy phenyl cyclopropane) (**S. Shalini**<sup>1</sup>, S.Sijana<sup>2</sup>, M.Amalanathan<sup>3</sup>)
55. Experimental and DFT studies on the molecular structure, spectroscopic properties, and molecular docking of 3-Nitroaniline (**Sherlin.S.S**<sup>1</sup>, Benisha.R<sup>2</sup>, **Amalanathan.M**<sup>3</sup>)

56. Computational Evaluation on Molecular Structure, MEP, HOMO-LUMO analysis of Synthesized Compound p-nitrophenol Sodium-bisulfate (**C.L. Shiny<sup>a</sup>**, R. Suja<sup>b</sup>, A. Rathika<sup>c</sup>, T. Joselin Beaula<sup>d\*</sup>)
57. Investigations on the optical and mechanical properties of creatininium 2-chloroacetate single crystal (**Sindhusha S<sup>a\*</sup>**, Padma C M<sup>b</sup>)
58. Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.010 (**N. Subeena<sup>(1)</sup>**, **S.Antony Dominic Christopher<sup>(2)</sup>**)
59. FT-IR, UV-Vis and NMR Characterization and Investigation of Reactive Properties of 4-Amino-5-(naphth-2-oyl)-2-ethyl/propylaminothiazoles by Molecular Simulations and DFT Calculations (**K.Thibi Mol<sup>a,b</sup>**, T.F.Abbs Fen Reji<sup>b\*</sup>, H.Marshan Robert<sup>c</sup>)
60. Synthesis and structural characterization of aluminium doped magnesium oxide (**S.N. Viji<sup>(1)</sup>**, **T.R Jeena<sup>(2)</sup>**)
61. DFT Studies and topology analysis of 1 acetyl – 2 (4 – isopropoxy – 3 - methoxyphenyl) cyclopropane (**Jibin D<sup>1</sup>**, S.Sijana<sup>2</sup>, **M.Amalanathan<sup>3</sup>**)
62. Fluctuating radial solar wind (**Rini Reshma Crass T<sup>1</sup>**, **Bidhu S<sup>2</sup>**)
63. Relation between solar wind parameters and solar cycles-recent solar maxima (**Jothika G.R<sup>1</sup>**, **Bidhu S<sup>2</sup>**)
64. Characteristics of speed of solar cme's in 24 solar cycle (**Bramya V M<sup>1</sup>**, **Bidhu S<sup>2</sup>**)
65. Slow solar wind fluctuations observations from ulysses orbit (**Jenisha G<sup>1</sup>**, **Bidhu S<sup>2</sup>**)
66. Studies on organic 4-hydroxy benzophenone single crystals (**M.L.Lima Rose<sup>a,b</sup>**, T.Suthan<sup>c</sup>, Gnanasambandam<sup>a</sup>)
67. Synthesis and Characterisation of Ternary Semiconductor Nanoparticles Blended with Medicinal Leaf Extract (**Cinsy N K<sup>\*</sup>** and Racil Jeya Geetha R<sup>1</sup>)



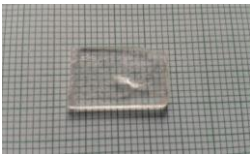
<b>OP-11</b>	<b>Structural, Effects of hydrogen bonding(C-H...O and C-H...N), FMO, MEP and molecular docking analysis of N-(4-Bromophenyl)-1-(2-nitrophenyl)methanimine</b>
<p style="text-align: center;"><b>Bravanjalin Subi E<sup>1,2</sup>, D.Aruldas<sup>2</sup></b></p> <p style="text-align: center;"><sup>1</sup>Register No: 20213112132016, Manonmaniam Sundaranar University, Tirunelveli.  <sup>2</sup>Department of Physics &amp; Research Centre, Nesamony Memorial Christian College, Marthandam-629165, TamilNadu, India.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>The present study aims to provide deeper knowledge about the structural, computational, chemical and antimicrobial activity of N-(4-Bromophenyl)-1-(2-nitrophenyl)methanimine. The molecular geometry, hydrogen bonding interaction and vibrational frequencies have been calculated using the density functional method (DFT/B3LYP) with 6-311G (D, P) basis set. The natural bond orbital (NBO), atoms in molecule (AIM), and Hirshfeld surface analysis, and RDG were applied to evaluate the relative strength of hydrogen bond interactions and represent their effect on the stabilities of molecular arrangements. The HOMO and LUMO analysis were used to determine the charge transfer within the molecule. The antimicrobial activity was confirmed on the compounds with molecular docking studies.</p> <p><b>Keywords:</b> NBO; QTAIM; RDG.</p>	

<b>OP-12</b>	<b>Synthesis of silver nanoparticles using Syzygiummalaccense fruit extract and evaluation of their catalytic activity and antibacterial properties</b>
<p style="text-align: center;"><b>Herbin Basalius H<sup>a</sup>, Amalanathan. M<sup>b*</sup>, Maria Lenin.M<sup>c</sup></b></p> <p style="text-align: center;"><sup>a</sup>Reg. No: 18133112131041, Research Scholar, Department of Physics, AnnaiVelankanni College of Arts and Science, Tholayavattam, Tamilnadu, India.  <sup>b*</sup>Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Tamilnadu, India.  <sup>c</sup>Department of Physics, AnnaiVelankanni College of Arts and Science, Tholayavattam, Tamilnadu, India.  <sup>a,b,c</sup>Department of Physics, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India.</p> <p style="text-align: center;"><b>Corresponding Author:</b> <a href="mailto:ria.lenin@gmail.com">ria.lenin@gmail.com</a></p> <p style="text-align: center;"><b>Abstract</b></p> <p>In this study green synthesis of silver nanoparticles, an aqueous <i>Syzygiummalaccense</i> fruit extract was employed as a reducing agent. UV–visible spectroscopy, X-ray diffraction (XRD), UV-visible, Scanning Electron Microscope (SEM), Elemental Dispersive X-ray Analysis (EDX) and Transmission Electron Microscopy (TEM) were used to examine the nanoparticles. The synthesized nanoparticles surface plasmon resonance peak was measured at 438 nm. The absorption spectra of <i>Syzygiummalaccense</i> fruit extract exhibit a blue shift with decreasing particle size as the concentration increases. The silver nanoparticles were uniformly distributed and spherical, with an average particle size of 15 nanometres. Both gram-positive and gram-negative bacteria are inhibited by the silver nanoparticles. The silver nanoparticles that have higher catalytic activity of 94% at the end of 120 mins. This natural silver nanoparticle synthesis technique makes a significant contribution to green synthesis and nanotechnology by eliminating the use of harmful and toxic solvents and trash.</p>	

<b>OP-13</b>	<b>Structure of sun's magnetic field during polar reversal phase</b>
<p style="text-align: center;"><b>Iren Sobia. A<sup>1</sup> and Bidhu S S<sup>2</sup></b></p> <p><sup>1</sup> Assistant Professor, Department of Physics and Research Centre, Muslim Arts College, Thiruvithancode. <sup>2</sup> Assistant Professor, Department of Physics &amp; Research Centre, Nanjil Catholic College of Arts &amp; Science, Kaliyakkavilai <b><a href="mailto:irensobia@gmail.com">irensobia@gmail.com</a>, <a href="mailto:bidhuss@gmail.com">bidhuss@gmail.com</a></b></p> <p style="text-align: center;"><b>Abstract</b></p> <p>Solar wind that is slow, cool and dense wind is related to closed magnetic field lines and the heliospheric current sheet. Ulysses in its first and second orbit observed slow solar wind velocity with high density protons. This observation is quite different from all the earlier observations made on the slow solar wind velocity. This event coincides with a large scale solar phenomena, the solar polar reversal, when the Sun exchanges its solar global magnetic polarity. The polarity reversal mechanism is extremely slow phenomena mainly taking place in the interior of the convective zone, when Sun starts reversing its polarity. During the reversal phase the solar surface is occupied with mixed polarities. The polarities often form closed magnetic loops, found to spread over wide coronal surface, accompanying small coronal holes that forms ambient solar wind from the surface of Sun. The polarity reversal at the poles start after sunspot maximum. The solar wind that emerge during the polarity reversal is found to be having slow solar speed with high concentrations of proton particle.</p>	

<b>OP-14</b>	<b>Vibrational spectroscopic characterization, DFT studies and structural investigations of N-(2-Hydroxybenzylidene)-2-Iodoaniline</b>
<p style="text-align: center;"><b>D.Jayareshmi<sup>1,*</sup>, D.Aruldas<sup>2,*</sup></b></p> <p><sup>1,*</sup> Assistant Professor, Department of Physics &amp; Research Centre, Women's Christian College, Nagercoil. <sup>2,*</sup> Associate Professor, Department of Physics &amp; Research Centre, Nesamony Memorial Christian College, Marthandam.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>To evaluate the molecular optimized geometry parameter of N-(2-Hydroxybenzylidene)-2-Iodoaniline was performed using gaussian'09 software packages. The observed IR and Raman bands were compared with harmonic vibrational frequencies of the optimized structure of N-(2-Hydroxybenzylidene)-2-Iodoaniline, calculated using the (B3LYP) with 6-31G (d, p) level of theory, and assigned on the base of potential energy distribution (PED). The vibrational frequency assignments were made with a high degree of accuracy with the help of Chemcraft software program. All the calculations were done for the optimized structures in gas phase. GAUSSVIEW program has been considered to get visual animation. The experimental UV-Vis absorption spectrum was recorded and compared with the simulated time-dependent (TD-DFT) approach. HOMO-LOMO energy gap, Charge analysis, Molecular electrostatic potential and Natural Bond Orbital (NBO) analysis were done.</p> <p>Keywords: DFT, NBO, Charge Analysis and MESP</p>	



<b>OP-15</b>	<b>Vibrational and Optical Studies of 3,4,5-trimethoxybenzaldehyde single crystals for NLO applications</b>
<p style="text-align: center;"><b>R.P. Jebin<sup>a</sup> and T. Suthan<sup>b</sup></b></p> <p style="text-align: center;"><sup>a</sup><i>Department of Physics and Research Centre, Muslim Arts College, Thiruvithancode – 629174, , India</i>  <sup>b</sup><i>Department of Physics, Lekshmipuram College of Arts and Science, Neyyoor-629802, India</i></p> <p style="text-align: center;">corresponding author email id : <a href="mailto:rpjebi@gmail.com">rpjebi@gmail.com</a></p> <p style="text-align: center;"><b>Abstract</b></p> <p>In the recent years, studies of optical nonlinearities in materials have been become more interesting because of their useful application in integrated optics, such as optical modulation, all optical switching and optical information processing. The several NLO behaviors, such as the optical limiting is one of the most promising practical applications, as it may be protect the human eyes and the optical sensors from the damage caused by the intense optical radiations. The researchers are given the appreciable care to develop and improve the quality of the organic single crystals for the technological applications. The organic material 3,4,5-trimethoxybenzaldehyde has been grown by slow evaporation technique using methanol as solvent. The Vibration studies were recorded using FTIR and FT-Raman spectra to identify the functional groups present in the crystal. The optical property of the grown crystal was analyzed by UV-Vis-NIR measurement. The third order nonlinear optical properties of 3,4,5-trimethoxybenzaldehyde was measured by the Z-scan technique using 532 nm diode pumped continuous wave (CW) Nd:YAG laser.</p> <p><b>Keywords:</b> Crystal growth from Solution, FTIR, FT-Raman</p> <p><b>Photograph of 3,4,5-TMOB Single crystals</b></p> 	

<b>OP-16</b>	<b>Vibrational spectral investigation, DFT computational studies and charge transfer interactions analysis of L-lysine monohydrate</b>
<p style="text-align: center;"><b>T. Brintha<sup>1</sup>, J. Jeni James<sup>2</sup>, P.J. Jegan Babu<sup>3</sup>, M. Amalanathan<sup>4</sup></b></p> <p><sup>1</sup> Research Scholar, (Reg no. 19213112132012, Department of physics, Nesamony Memorial Christian College, Marthandam, Kanyakumari, Tamil Nadu, India.  <sup>2</sup> Research Scholar, Department of physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.  <sup>3</sup> Assistant Professor, Department of physics, Nesamony Memorial Christian College, Marthandam, Kanyakumari, Tamil Nadu, India.  <sup>4</sup> Assistant Professor, Department of physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.  <sup>1, 2,3,4</sup> Affiliated to Manonmaniam Sundaranar University Tirunelveli, TamilNadu, India.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>In this work, using the Gaussian 09 program, the molecular structure of L-Lysine monohydrate was optimized using the DFT method with B3LYP/6-311++G(d,p) basic sets. The Mulliken atomic charge distribution, vibrational frequencies, frontier molecular orbitals and Topological analysis were calculated. The VEDA 4.0 tool was used to assign the whole theoretically estimated and experimentally observed vibrational frequencies using</p>	

<b>OP-22</b>	<b>Theoretical and spectroscopic studies of orotic acid</b>
<p style="text-align: center;"><b>S.Sijana<sup>1</sup>, M.Amalanathan<sup>2</sup></b></p> <p><sup>1</sup>Research scholar (Reg.No:21113102132002), Department of physics Nanjil Catholic College of Arts and Science,Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>2</sup>Assistant Professor, Department of physics Nanjil Catholic College of Arts and Science,Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>1,2</sup>Affiliated to Manonmanium Sundararnar University Tirunelveli, Tamil Nadu, India.</p> <p>This paper deals with the theoretical and spectroscopic studies of Orotic acid. A comprehensive spectroscopic analysis of Orotic acid's structural behaviour has been undertaken. FT-IR and FT-Raman techniques were used to examine the spectral properties of the Orotic acid molecule in the solid state. The B3LYP/6–311++G (d, p) computations were used to optimize the molecular structure. To provide complete vibrational spectral assignments, normal co-ordinate analysis (NCA) was used. The stability and different types of hydrogen bonds inside the molecule are explained by natural bond orbital analysis (NBO). The topological analysis AIM, ELF, and the reduced gradient of the density are used to examine the intra and intermolecular interactions that exist inside these molecules. These methods make it feasible to investigate the properties of hydrogen bonding in particular. To realize charge, transfer within the molecule, the highest occupied molecular orbital and the lowest unoccupied molecular orbital energy levels are generated, and the matching border energy gaps are computed. The minimal binding energy was obtained using molecular docking studies on the title chemical to examine hydrogen bond interactions.</p> <p>Keywords: Orotic acid; DFT calculation; IR; Raman; NBO; RDG</p>	

<b>OP-23</b>	<b>Crystal growth, xrd and vibrational studies of piperazine p-nitrophenol (ppn) single crystals</b>
<p style="text-align: center;"><b>R.Suja<sup>a</sup>, A. Rathika*</b></p> <p><sup>a,*</sup> Research Scholar (Reg.No: 21213092132004) Department of Physics and Research Centre, Muslim Arts College, Thiruvithancode,</p> <p>Thuckalay- 629 175, Tamilnadu, India, Affiliated to Manonmaniam Sundaranar University, Tirunelveli - 627 012</p> <p>*email:rathikarthi87@gmail.com</p> <p style="text-align: center;"><b>Abstract</b></p> <p>Single crystals of piperazine and p-nitrophenol (PPN) crystal was synthesized and yellow coloured good optical quality single crystals were grown methanol as solvent by slow evaporation solution growth technique at room temperature. From the single crystal X-ray diffraction study, the PPN crystal crystallizes in centrosymmetric, monoclinic system with space group P2<sub>1</sub>/c. From the powder XRD data, the appearance of sharp and well defined Bragg's peaks confirmed the crystalline nature of the grown crystal. The peak corresponding to (0 1 7) hkl plane has the maximum intensity of PPN single crystal.the various angles of reflection have been found out. From the vibrational studies, the nitrophenol group C-NO<sub>2</sub> stretching and CH in plane bending occurs at 1160 cm<sup>-1</sup> and 1104 cm<sup>-1</sup> in FT-IR and 1165 cm<sup>-1</sup>, 1105 cm<sup>-1</sup> in Raman spectrum respectively. The peak at 1065 cm<sup>-1</sup> is assigned to wagging CH<sub>2</sub> and NH<sub>2</sub> stretching of piperazine.</p> <p><b>Keywords:</b> Crystal growth from Solution, XRD, Vibrational studies</p>	



<b>OP-24</b>	<b>Structural characterization of Zn and Fe doped aluminium oxide nanoparticles prepared by co-precipitation method</b>
<p style="text-align: center;"><b>R.Winston <sup>(1)</sup>, T.R Jeena <sup>(2)</sup></b></p> <p style="text-align: center;">1) M.Phil. Scholar 2) Assistant Professor Department of Physics Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>A systematic study on the preparation of pure and Zn, Fe doped Aluminum oxide(<math>\text{Al}_2\text{O}_3</math>) nanoparticles for doping concentration of 2 wt.% has been conducted. Co-Precipitation technique has been used for the preparation of the samples. The structure, crystallite size, lattice parameters and micro strain of the prepared samples and the influence of doping different elements (Zn and Fe) on those parameters were investigated by X-ray diffraction (XRD) analysis. For all three samples XRD patterns revealed rhombohedral structure of <math>\text{Al}_2\text{O}_3</math>. Also, in the doped samples, the addition of Zn and Fe ions are observed. Also, the precise values of crystallite size and micro strain of the samples were found by constructing W-H plot.</p>	

<b>OP-25</b>	<b>Synthesis and Characterization of Cu-Doped ZnSe Nanoparticles for Photocatalytic Activity</b>
<p style="text-align: center;"><b>V. Beena <sup>1</sup>, S. L. Rayar <sup>2</sup>, S. Ajitha <sup>1</sup></b></p> <p style="text-align: center;"><sup>1</sup> Department of Physics, Nanjil Catholic College of Arts and Science, Manonmaniam Sundaranar University, Kanyakumari 629153, India; ajithaphyholly@gmail.com <sup>2</sup> Dept of Physics, St. Judes College, Kanyakumari 629176, India; drslrayar@gmail.com</p> <p style="text-align: center;"><b>Abstract</b></p> <p>Environmental nanotechnology has received much attention due to their removal capacity of toxic elements from the aquatic surface. This work stated that Cu doped ZnSe nanoparticles using the co-precipitation method. The synthesized Cu doped ZnSe nanoparticles were examined by structural, optical and morphological properties with the help of XRD, FTIR, UV-Vis DRS, FESEM and TEM. The synthesized Cu-doped ZnSe nanoparticles revealed the <math>\text{Cu}^{2+}</math> presence in the ZnSe lattice.. The synthesized Cu doped ZnSe nanoparticles were examined by photocatalytic activity. The 0.1M copper doped ZnSe nanoparticles exhibited the highest rate of degradation against the methyl orange dye is 87%. The pseudo-first-order kinetics of the Cu doped ZnSe nanoparticles is <math>0.1334 \text{ min}^{-1}</math>. The Cu-doped ZnSe nanoparticles exhibit enhanced photocatalytic activity.</p> <p><b>Keywords:</b> Cu doped ZnSe NP's, MO, Photocatalysis, Visible light</p>	

<b>OP-26</b>	<b>Synthesis and Characterisation of Ternary Semiconductor Nanoparticles Blended with Medicinal Leaf Extract</b>
<p style="text-align: center;"><b>Cinsy N K* and Racil Jeya Geetha R<sup>1</sup></b></p>	

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#### **Abstract**

The characterizations of synthesized CdZnS nanoparticles with Ocimum sanctum leaf extract were done by the chemical precipitation method. The formation of CdZnS nanoparticles with the extract was confirmed using XRD, SEM analysis and EDAX. XRD revealed the structure and the particle size. SEM analysis of CdZnS NPs confirmed shape and size.

Key words:

Chemical precipitation, hydrodynamic radius, dynamic light scattering

<b>PP-1</b>	<b>Synthesis and structural characterization of zinc doped magnesium oxide</b>
<p><b>B.C. Abhinisha <sup>(1)</sup>, T.R Jeena <sup>(2)</sup></b></p> <p>1) M.Sc. Student 2) Assistant Professor, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p><b>Abstract</b></p> <p>Pure and 2 wt.% Zn doped magnesium oxide nano particles were synthesized via co-precipitation method using chemical route. The synthesized nanoparticles are analysed using X-ray diffraction technique. The structure, crystalline size, lattice parameter and micro strain of pure and zinc doped magnesium oxide nanoparticles were found from the diffraction pattern. For both the samples XRD patterns revealed cubic structure of magnesium oxide. Also in the doped samples, the addition of zinc ions are observed.</p>	

<b>PP-2</b>	<b>XRD characterization of zinc oxide (ZnO) nano particles prepared by solution based method</b>
<p><b><sup>1</sup>Abhirami.U.M; <sup>2,*</sup>Murugavel.S</b></p> <p>Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai</p>	



**Abstract**

In the present study Zinc oxide (ZnO) nano particles were prepared by simple solution based method using Zinc Chloride (ZnCl<sub>2</sub>). The prepared sample was characterized by X-Ray Diffraction Technique. XRD study confirmed that synthesised samples are Zinc Oxide (ZnO) nano particles.

**KEYWORDS**

Zinc Oxide, Nano particle, X-Ray Diffraction (XRD), Characterization.

**PP-3**

**DFT computational studies on 1 acetyl-2-(4-butoxy-3-methoxyphenyl) cyclopropane**

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**Abstract**

In the present work the optimized molecular geometry of 1 acetyl -2-(4-butoxy-3-methoxyphenyl) cyclopropane calculated by DFT/B3LYP method with 6-31 G (d, p) basis set using Gaussian 09 software has been investigated. Mulliken atomic charges are calculated and interpreted. Charge transfer within the molecule is indicated by HOMO and LUMO. The energy gap between the ground state HOMO and first excited state LUMO energies were determined and the band gap energy of the title molecule is found to be 3.8115. The electron distribution and reactive site on the surface of the molecule are analyzed using ELF and LOL analysis. The noncovalent interaction (NCI) analysis provides the most important interaction informations such as Vander Waals interactions, hydrogen bonds and steric interactions present in the molecule.

Keywords: NCI, Mulliken, ELF, LOL, DFT.

**PP-4**

**Theoretical computation of 2-chloro-3-nitro toluene using turbomole software**

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Department of Physics, Nesamony Memorial Christian College, Marthandam.

**Abstract**

The optimized geometry and simulated IR and Raman spectrum of 2-chloro-3-nitro toluene have been obtained by using the Turbomole software. Experimental FT-IR and FT-Raman spectra of 2-chloro-3-nitro toluene were collected from literature and was compared with theoretical vibrational spectra. The normal modes of vibration

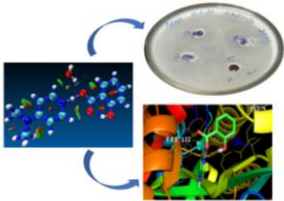
of the title compound were compared with that obtained with Turbomole software. The comparison shows that theoretical values are approximately equal to the theoretical values already available in literature. Thermodynamic properties such as entropy, enthalpy, chemical potential, zero-point energy of 2-chloro-3-nitro toluene were obtained using Turbomole software.

<b>PP-5</b>	<b>Synthesis and structural characterization of magnesium doped aluminium oxide nanoparticle</b>
<p style="text-align: center;"><b>S. Babisha<sup>(1)</sup>, T.R Jeena<sup>(2)</sup></b></p> <p style="text-align: center;">1) M.Sc. Student 2) Assistant Professor, Department of Physics Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>Pure and Mg doped Aluminium oxide nanoparticles for a doping concentration of 2 wt. % has been synthesized using co-precipitation technique. Prepared samples were characterized using X-ray diffraction (XRD) analysis to analyse the structure, crystalline size, lattice parameters and microstrain of the prepared samples. In addition, the influence of doping Mg on these parameters were also investigated. For both the samples XRD patterns revealed rhombohedral structure.</p>	

<b>PP-6</b>	<b>Impact of Charge Interaction, H-Bonding Elucidations by Structural and Biological Activity of Diammonium Hydrogen Orthophosphate</b>
<p style="text-align: center;"><b>G.Bagavathi Sankar<sup>1</sup>, D.Usha<sup>2</sup></b></p> <p style="text-align: center;"><sup>1</sup>Reg.No18223282131003, Department of Physics, St.Johns College of Arts and Science Ammandivilai <sup>2</sup>Associate Professor, Department of Physics, Womens Christian College, Nagercoil-629001 <sup>1,2</sup>Affiliated to Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli-627 012, Tamilnadu, India</p> <p style="text-align: center;"><b>Abstract</b></p> <p>The structure-activity of diammonium hydrogen orthophosphate optimized using the density functional theory method using B3PW91/6-31++G (d, p) set. Hydrogen bonding interactions confirmed by Natural Bonding orbitals (NBO) Analysis. The frontier molecular orbital analysis provided a electron transport in the molecule. The most reactive site of the molecules was predicted by the molecular electrostatic potential map and also natural charge analysis. Vibrational spectral assignments predicted the aid of Normal Coordinate Analysis. Antimicrobial activity performed for biological activity screening of the molecules along with drug likeness confirmed its antibacterial activity.</p>	



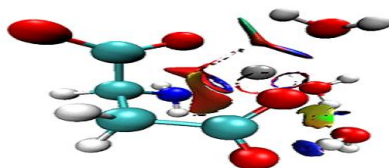
PP-7	FTIR characterization of ZnO nano particles prepared by solution based method
<p style="text-align: center;"><b>Belbiya.R ; Murugavel.S</b></p> <p style="text-align: center;">Department of Physics, Nanjil Catholic College Of Arts And Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>In the present study ZnO nano particles were prepared by simple solution based method using Zinc chloride. The prepared sample was characterized by Fourier Transform Infrared (FTIR) spectroscopy techniques. The characteristic peak confirmed that synthesized samples are Zinc oxide particles.</p> <p><b>KEY WORDS : Zinc Oxide, Nano particles, FTIR , Characterization .</b></p>	

PP-8	Exploring the Covalent, Non-Covalent interactions and Pharmacokinetics properties of the Antibacterial compound 4-Dimethylaminopyridinium Salicylate Monohydrate
<p style="text-align: center;"><b>J. D. Deepthi Tarika<sup>a</sup>, R.S. Bemina<sup>b</sup>, T. Joselin Beaula<sup>c*</sup></b></p> <p><sup>a,b,c</sup>Department of Physics and Research Centre, Malankara Catholic College, Mariagiri-629153, Tamilnadu, India.  <sup>a,b,c</sup>Affiliated to Manonmaniam Sundaranar University, Abishekapatti-627012, Tirunelveli, Tamilnadu, India  <a href="mailto:joselinbeaula@gmail.com">*joselinbeaula@gmail.com</a></p> <p>Antibacterial resistance is regarded as one of the most serious public health issues, since it has a large economic impact over the world. Pyridine moieties play an imperative role in medicinal chemistry ascribed to their anti-microbial, anti-viral, anti-diabetic, anti-cancer, anti-oxidant, anti-malaric, anti-inflammatory and anti-bacterial properties. RDG analysis reveals the weak hydrogen bonding interactions, steric effect and strong hydrogen bonding interactions, whereas DORI analysis reveals information about the non-Covalent interactions as well as the Covalent interactions. Antibacterial testing of DPSM using agar well diffusion method reveals that DPSM inhibits the <i>Klebsiella pneumoniae</i> more and the second pathogen that was inhibited more was the <i>Streptococcus pneumoniae</i>. Both these bacteria are the main source for the pneumococcal infections and as DPSM inhibits these bacteria it is clear that DPSM can be used to treat the infections caused by these bacteria. Molecular Docking also confirms that DPSM has high binding affinity with the <i>Klebsiella pneumoniae</i> protein with a binding energy of -5.84 kcal/mol. Moreover, Drug likeness and ADMET analysis also validates that DPSM can be used as an oral drug to treat the antibacterial infections. DPSM is efficiently absorbed by the small intestine and is distributed evenly throughout the blood and plasma. As DPSM is not mutagenic and does not disrupt the liver, it is feasible that it may be deployed as a medication.</p> <div style="text-align: center;">  </div>	

<b>PP-9</b>	<b>Structural, Electronic properties and Docking Analysis of Antifungal Molecule MorpholiniumPerchlorate -A DFT Approach</b>
<p style="text-align: center;"><b>C. DaboraVincy<sup>a</sup>, T. JoselinBeaula<sup>b*</sup></b></p> <p><sup>a</sup>Reg.No: 19113092132004, Research Scholar, Department of Physics and Research Centre, Malankara Catholic College, Kaliyakkavilai-629153, TamilNadu, India.</p> <p><sup>b</sup>Department of Physics and Research Centre, Malankara Catholic College, Kaliyakkavilai-629153, TamilNadu, India.</p> <p>Affiliated to ManonmaniamSundaranar University, Abishekapatti-627012, Tirunelveli, Tamilnadu, India</p> <p style="text-align: center;"><a href="mailto:*joselinbeaula@gmail.com">*joselinbeaula@gmail.com</a></p> <p style="text-align: center;"><b>Abstract</b></p> <p>Morpholine is a heterocyclic featured in numerous approved and experimental drugs as well as antifungal and antibacterial active molecules. Morpholine and its derivatives are extensively used in many chemical reactions with a lot of important pharmacological properties. Structural and electronic properties of Morpholinium perchlorate was studied by molecular optimised, HOMO-LUMO, electrostatic potential and docking studies. Electronegative groups such as Cl atoms in an anion can show higher antimicrobial activity. Theoretical computations of morpholinium perchlorate have been accomplished using density functional theory with B3PW91/6-31G (d, p) basis set using the Gaussian'09 software package. Optimized geometric bond lengths, bond angles and dihedral angles of the molecule were calculated and analyzed. Molecular electrostatic potential (MEP) surface analysis of the molecule was performed in order to predict the reactive site of the molecule. Charge transfer in a molecule has been illustrated using the frontier molecular orbitals. Molecular docking studies were performed to identify the antifungal activity of the title compound.</p> <div style="text-align: center;"> </div>	

<b>PP-10</b>	<b>Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.008</b>
<p style="text-align: center;"><b>K. Athira <sup>(1)</sup>, S.Antony Dominic Christopher<sup>(2)</sup></b></p> <p><sup>(1)</sup>M.Sc Student, Nanjil Catholic College of Arts and Science Kaliyakkavilai.</p> <p><sup>(2)</sup>Assistant Professor, Nanjil Catholic College of Arts and Science Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>L-threonine is an optically active form of threonine having L-configuration. They show high non-linearity and low refractive indices. The crystals were grown by slow evaporation technique. Methyl violet (C<sub>24</sub>H<sub>28</sub>N<sub>3</sub>Cl) is used as the dye dopant in the ratio 0.008. The grown crystal was characterised by X-ray diffraction analysis. It confirms the grown crystals belong to orthorhombic system.</p>	





PP-13	<b>Experimental and Theoretical Investigation on L-Phenylalanine L-phenylalaninium malonate</b>
<p style="text-align: center;"><b>N.F.Febi Frederic<sup>a,*</sup>, S.Sindhusha<sup>b</sup></b></p> <p><sup>a</sup> M..Phil Scholar, Department of Physics &amp; Research Center, Nesamony Memorial Christian College, Marthandam – 629165, Tamilnadu, India.</p> <p><sup>b</sup> Department of Physics &amp; Research Center, Nesamony Memorial Christian College, Marthandam - 629165, Tamilnadu, India.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>The crystal structure investigations of L-Phenylalanine with Methanedicarboxylic acid, namely L-Phenylalanine L-phenylalaninium malonate have been investigated by means of single crystal X-ray diffraction method. The title compound crystallizes in monoclinic crystal system, and the space group is <math>P2_1</math> with <math>a=14.031(3)\text{\AA}</math>, <math>b=5.5082(10)\text{\AA}</math>, <math>c=14.601(3)\text{\AA}</math> and <math>Z=2</math>. Its optical behaviour has been examined by UV-vis spectral analysis, which shows the absence of absorbance in the visible region. Nonlinear optical efficiency was confirmed by Kurtz Perry powder technique. The structural study and Hirshfeld surface analysis allowed us to establish the importance of hydrogen bond and intermolecular interaction in the crystal packing and their role in the NLO properties.</p> <p>Keywords: Crystal growth, Nonlinear optics, hirshfeld.</p>	

PP-14	<b>DFT studies, structural determination, chemical properties and topological analysis of 1 acethyl-2-(4-ethoxy-3-methoxyphenyl)</b>
<p style="text-align: center;"><b>G.M. Geeshma<sup>1</sup>, J. Jeni James<sup>2</sup>, M. Amalanathan<sup>3</sup></b></p> <p><sup>1</sup> M.Sc, Department of physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>2</sup> Research Scholar, Department of physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>3</sup> Assistant Professor, Department of physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>1, 2, 3</sup> Affiliated to Manonmaniam Sundaranar University Tirunelveli, TamilNadu, India.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>The purpose of our work is to present a theoretical study of 1 acethyl-2-(4-ethoxy-3-methoxyphenyl) cyclopropane. Geometry optimization such as bond length, bond angle and dihedral angle has been carried out in the gas phase by B3LYP level of DFT. The Mulliken population analysis on atomic charges has been computed. Global reactivity descriptors (ionization potential, electron affinity, electron negativity, global hardness, softness, electrophilicity index and chemical potential) were predicted with the help of HOMO LUMO values. The energy gap value suggests</p>	

<b>PP-16</b>	<b>Spectroscopic and Structural Investigations on Acethyl 2(3-methoxy -4 proporxy pheny)by FTIR, NBO and Topological analysis</b>
<p style="text-align: center;"><b>Jebina Rose.J<sup>1</sup>, Amalanathan.M<sup>2*</sup>, Benisha R<sup>3</sup>.</b></p> <p style="text-align: center;"><i><sup>1,2*,3</sup> Department of Physics, Nanjil Catholic College of Arts &amp; Science, Kaliyakkavilai, Tamil Nadu, India.</i>  <i><sup>1,2*,3</sup> Affiliated to Manonmaniam Sundaranar university, Abishekapatti, Tirunelveli-627 012</i>  <i>Tamil Nadu, India.</i></p> <p style="text-align: center;"><b>Abstract</b></p> <p>FT-IR spectral analysis was used to describe the title compound, Acetyl 2(3-methoxy -4 proporxy pheny). Density functional theory (DFT) B3LYP technique with 6-311++G(d,p) basis set was used to determine the optimized geometry, vibrational wavenumbers, infrared intensities, and Raman scattering activities. The VEDA programme was used to do a detailed interpretation of the vibrational spectra. Charge transmission within the molecule is demonstrated by the computed HOMO and LUMO energies. Natural bond orbital analysis was used to investigate the stability of the molecule as a result of hyperconjugative interactions and charge delocalization (NBO). To quantify non-covalent and covalent bond interactions in the molecule, RDG (Reduced density gradient) is used. The chemical bonding of the chosen molecule is determined using ELF and LOL.</p> <p>Keywords: Topology, Mulliken analysis, RDG, NBO, VEDA.</p>	

<b>PP-17</b>	<b>growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.004</b>
<p style="text-align: center;"><b>B. Jency Paul <sup>(1)</sup> S. Antony Dominic Christopher <sup>(2)</sup></b></p> <p style="text-align: center;"><sup>(1)</sup> M.Sc. Student, Nanjil Catholic College of Arts and Science, Kaliyakkavilai  <sup>(2)</sup> Assistant Professor, Nanjil Catholic College of Arts and Science, Kaliyakkavilai</p> <p style="text-align: center;"><b>Abstract</b></p> <p>L-threonine is an extremely interesting optically active amino acid in addition to its biological properties. It acts as a proton donor, proton acceptor and nucleophilic reagent. The crystals were grown by slow evaporation technique. Methyl violet (C<sub>24</sub>H<sub>28</sub>N<sub>3</sub>Cl) is used as the dye dopant in the ratio 0.004. The grown crystal was charecterised by X-ray diffraction analysis. It confirms the grown crystals belong to orthorhombic system.</p>	

<b>PP-18</b>	<b>Synthesis and structural characterization of Fe doped aluminium oxide nanoparticles</b>
<p style="text-align: center;"><b>P. Jeniba <sup>(1)</sup>, T.R Jeena<sup>(2)</sup></b></p> <p style="text-align: center;">1)M.Sc. Student 2)Assistant Professor,  Department of Physics  Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>Fe doped (2 wt. %) and pure Aluminium oxide nanoparticles has been synthesized using co-precipitation method of preparing nanoparticles. The structural characteristics of the prepared samples were investigated using X-</p>	



ray diffraction (XRD) technique. The structure, crystalline size, lattice parameters and microstrain of both the prepared samples and the influence of doping Fe on these parameters were investigated using the diffraction pattern. For both the samples XRD patterns revealed rhombohedral structure.

<b>PP-19</b>	<b>FTIR characterization of TiO<sub>2</sub> nano particles prepared by sol-gel method</b>
<p style="text-align: center;"><b>Jenish.J.P, Murugavel.S</b></p> <p style="text-align: center;">Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>In the present study TiO<sub>2</sub> nano particles were prepared by SOL-GEL method. The prepared sample was characterized by fouriertransforminfrared spectroscopy techniques.FTIRcharacteristic peak confirmed that synthesized samples are Titaniumdioxide particles.</p> <p><b>Key words</b></p> <p>Titaniumdioxide, Nano particles, FTIR ,Characterization.</p>	

<b>PP-20</b>	<b>Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.006</b>
<p style="text-align: center;"><b>Jinsha grace.S.V<sup>(1)</sup>, S.Antony Dominic Christopher<sup>(2)</sup></b></p> <p style="text-align: center;"><sup>(1)</sup>MSc Student, Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><sup>(2)</sup>Assistant professor, Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>The crystals were grown by slow evaporation technique. The dye used in the study for dopant in the ratio 0.006 is Methyl Violet (C<sub>24</sub>H<sub>28</sub>N<sub>3</sub>Cl). L-threonine is an essential amino acid that helps to maintain the proper protein balance in the body. The grown crystal were characterised X-ray diffraction analysis confirms the grown crystals belong to orthorhombic system.</p>	

<b>PP-21</b>	<b>Synthesis and structural characterization of Zn doped aluminium oxide nanoparticles</b>
<p style="text-align: center;"><b>S.S. Joji Thomas<sup>(1)</sup>, T.R Jeena<sup>(2)</sup></b></p>	

1)M.Sc. Student 2) Assistant Professor,  
Department of Physics  
Nanjil Catholic College of Arts and Science, Kaliyakkavilai.

**Abstract**

A systematic study on the preparation of pure and zinc (Zn) doped Aluminium oxide nanoparticles for a doping concentration of 2 wt. % has been conducted. Precipitation technique has been used for the preparation of the samples. Prepared samples were characterized using X-ray diffraction (XRD) technique to find the structure, crystalline size, lattice parameters and microstrain of the samples and to investigate the influence of doping Zn with aluminium oxide on these parameters. XRD patterns revealed Rhombohedral axes structure for both the samples.

<b>PP-22</b>	<b>UV Spectroscopic study of titaniumdioxide nano particles prepared by sol-gel method</b>
<p><b>Josephin darling J, Murugavel S</b></p> <p>Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p><b>Abstract</b></p> <p>In the present study TiO<sub>2</sub> nano particles were prepared by SOL-GEL method. The prepared sample was characterized by UV spectroscopy techniques. UV Spectroscopy study confirmed that synthesized samples are semiconducting nano particles.</p> <p><b>KEY WORDS :</b></p> <p>Titaniumdioxide, Nano particles, UV Spectroscopy, Characterization</p>	

<b>PP-23</b>	<b>Evaluation of Sodium salt of Orotic acid drug for biological application using DFT studies, HOMO-LUMO and topological analysis</b>
<p><b>Malavika.S<sup>1</sup>, Amalanathan.M<sup>2*</sup>, Benisha R<sup>3</sup>.</b></p> <p><sup>1,2,3</sup>Department of Physics, Nanjil Catholic College of Arts &amp; Science, Kaliyakkavilai, Tamil Nadu, India. <sup>1,2*,3</sup> Affiliated to Manonmaniam Sundaranar university, Abishekapatti, Tirunelveli-627 012 Tamil Nadu, India.</p> <p><b>Abstract</b></p> <p>The title compound, Sodium salt of Orotic acid was synthesized and characterized by FT-IR, and FT-Raman, spectral analysis. The optimized molecular geometry, the vibrational wavenumbers, the infrared intensities and the Raman scattering activities were calculated by using density functional theory(DFT) B3LYP method with 6-311++G(d,p) basis set. The detailed interpretation of the vibrational spectra has been carried out by VEDA program. The calculated HOMO and LUMO energies show that charge transfer within the molecule. Stability of the molecule arising from hyperconjugative interactions, charge delocalization have been analyzed using natural bond orbital</p>	



evaporation technique and to analyze its structural , optical and mechanical properties . The Single Crystal X-ray Diffraction analysis (SXRD) is carried out to identify the structural parameters. Hirshfeld surface analysis explains the interactions present in the synthesized material. The optical property has been examined by using UV-visible spectral analysis and the optical constants such as band gap energy, extinction coefficient and refractive index were evaluated. HOMO-LUMO and MESP maps were successfully generated and analysed .The emission behavior was analysed by fluorescence spectral analysis. Second order optical nonlinearity was confirmed by Kurtz-Perry powder technique. Mechanical property of the material has been analysed by Vicker's microhardness analysis .

Keywords: X-ray Diffraction, Optical property, Emission behaviour, Mechanical property

<b>PP-26</b>	<b>Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.002</b>
<p style="text-align: center;"><b>Nivitha N<sup>(1)</sup> and S Antony Dominic Christopher<sup>(2)</sup></b></p> <p style="text-align: center;"><sup>(1)</sup>M.Sc Student, Nanjil Catholic College of Arts and Science Kaliyakkavilai. <sup>(2)</sup>Assistant Professor, Nanjil Catholic College of Arts and Science Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>The crystals were grown by slow evaporation technique. The dye used in the study for dopant in the ratio 0.002 is methyl violet (C<sub>24</sub>H<sub>28</sub>N<sub>3</sub>Cl). L-threonine provides various health benefits like muscle tightness, liver health and so on. The grown crystal was characterized by X-ray diffraction analysis. IT CONFIRMS the grown crystals belong to orthorhombic system.</p>	

<b>PP-27</b>	<b>Synthesis and structural characterization of Fe doped magnesium oxide</b>
<p style="text-align: center;"><b>S.R. Regi<sup>(1)</sup>, T.R Jeena<sup>(2)</sup></b></p> <p style="text-align: center;">1) M.Sc. Student 2) Assistant Professor, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p style="text-align: center;"><b>Abstract</b></p> <p>Pure and 2 wt. % Fe doped magnesium oxide nano particles were synthesized via co-precipitation method using chemical route. The synthesized nanoparticles are analysed using X-ray diffraction technique. The structure, crystalline size, lattice parameter and micro strain of pure and Fe doped magnesium oxide nanoparticles were found from the diffraction pattern. For both the samples XRD patterns revealed cubic structure of magnesium oxide. Also in the doped samples, the additions of ferrous ions are observed.</p>	

<b>PP-28</b>	<b>XRD characterization of titanium dioxide nano particles prepared by sol gel method</b>
<p style="text-align: center;"><b>Reshma M.B, Murugavel.S</b></p>	

Department of Physics,  
Nanjil Catholic College of Arts and Science,  
Kaliyakkavilai

**Abstract**

In the present study Titanium dioxide nano particles were prepared by sol gel method. The prepared sample was characterized by X-Ray Diffraction technique. XRD study confirmed that synthesized samples are titanium dioxide nano particles.

Keywords: Titanium dioxide, nano particle, XRD Characterization.

<b>PP-29</b>	<b>DFT studies and topology analysis of 1 acetyl -2(4 benzyl0xy-3 methoxy phenyl cyclopropane)</b>
<p><b>S. Shalini<sup>1</sup>, S.Sijana<sup>2</sup>, M.Amalanathan<sup>3</sup>.</b></p> <p><sup>1</sup>M.Sc. Student, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>2</sup>Research Scholar, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>3</sup>Assistant Professor, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>1,2,3</sup>Affiliated to Manonmanium Sundararnar University Tirunelveli, Tamil Nadu, India</p> <p>The computational investigation on 1 acetyl-2(4 benzyloxy-3 methoxy phenyl cyclopropane) were done using DFT/B3LYP/6-311g(d,p) to study the molecular structure. The highest occupied molecular orbital and the lowest unoccupied molecular orbital energy levels are calculated and the corresponding frontier energy gaps are determined to realize the charge transfer within the molecule. The intra and intermolecular interaction exist within this compound is analyzed by different methods namely topology analysis ELF, LOL and RDG. The calculation of atomic charge by Mulliken plays a vital role in the application of the molecular system. Charge distributions of Mulliken and NBO are also analysed.</p> <p>Keywords: DFT calculation, ELF, RDG, Mulliken</p>	

<b>PP-30</b>	<b>Experimental and DFT studies on the molecular structure, spectroscopic properties, and molecular docking of 3-Nitroaniline</b>
<p><b>Sherlin.S.S<sup>1</sup>, Benisha.R<sup>2</sup>, Amalanathan.M<sup>3</sup></b></p> <p><sup>1</sup>M.phil, Reg No. 20213103546203, Department of Physics, Nanjil Catholic College of Arts &amp; Science, Kaliyakkavilai-629 153, Tamil Nadu, India.</p> <p><sup>1,2,3</sup>Department of Physics, Nanjil Catholic College of Arts &amp; Science, Kaliyakkavilai, Tamil Nadu, India.</p> <p><sup>1,2,3</sup>Affiliated to Manonmaniam Sundaranar university, Abishekapatti, Tirunelveli-627 012 Tamil Nadu, India.</p> <p><b>Abstract</b></p>	



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**Abstract**

The main aim of this work is to synthesize creatininium 2-chloroacetate (CR2ClA) single crystal by using slow evaporation technique and to analyze its structural, optical and mechanical properties. The Single Crystal X-ray Diffraction analysis (SXRD) is carried out to identify the structural parameters. Hirshfeld surface analysis explains the interactions present in the synthesized material. The optical property has been examined by using UV-visible spectral analysis and the optical constants such as band gap energy, extinction coefficient and refractive index were evaluated. Third order optical non linearity was confirmed by Z scan analysis. Mechanical property of the material has been analysed by Vicker's microhardness analysis.

**Keywords:** X-ray Diffraction, Optical property, Emission behavior, Mechanical property

<b>PP-33</b>	<b>Growth and XRD analysis of pure and dye doped L-threonine single crystal in the ratio 1:0.010</b>
<p><i>N. Subeena <sup>(1)</sup>, S. Antony Dominic Christopher <sup>(2)</sup></i></p> <p><sup>(1)</sup>M.Sc Student, Nanjil Catholic College of Arts and Science Kaliyakkavilai. <sup>(2)</sup>Assistant Professor, Nanjil Catholic College of Arts and Science Kaliyakkavilai.</p> <p>L-threonine is an essential amino acid that is used in the biosynthesis of proteins. The crystals were grown by slow evaporation technique. Methyl violet (C<sub>24</sub>H<sub>28</sub>N<sub>3</sub>Cl) is used as the dye dopant in the ratio 0.010. The grown crystal was characterized by X-ray diffraction analysis. It confirms the grown crystals belong to orthorhombic system.</p>	

<b>PP-34</b>	<b>FT-IR, UV-Vis and NMR Characterization and Investigation of Reactive Properties of 4-Amino-5-(naphth-2-oyl)-2-ethyl/propylaminothiazoles by Molecular Simulations and DFT Calculations</b>
<p><b>K.Thibi Mol<sup>a,b</sup>, T.F.Abbs Fen Reji<sup>b*</sup>, H.Marshan Robert<sup>c</sup></b></p> <p><sup>a</sup><i>Research Scholar (Reg.No:19213112032006); Affiliated at Manonmaniam Sundranar University, Tirunelveli-627012</i> <sup>b</sup><i>Department of Chemistry, Nesamony Memorial Christian College, Marthandam, kanyakumari District,Tamil Nadu-629165</i> <sup>c</sup><i>Department of Physics &amp; Research Centre, Nanjil Catholic College of Arts and Science, Kaliyakkavilai-629151, Tamil Nadu, India.</i></p>	

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**Abstract**

The compounds 4-amino-5-(naphth-2-yl)-2-ethyl/propyl aminothiazoles was synthesized and characterized with spectroscopy methods. The molecular framework of the compounds were optimized and the structural features were analyzed by DFT method with 6-311 G(d,p) basis set. FT-IR spectra of synthesized compounds were recorded in the region 4000–400 cm<sup>-1</sup>. The computed energies of MOs reveal charges that move inside the molecule. UV-Visible spectra show the various electronic transitions of title compounds. The material steadiness emerging from hyper conjugative connections, charge delocalization was discussed utilizing NBO examination. MEP and Fukui functions were performed to predict reactive site of the present compounds. The RDG examination was used to anticipate the weak interaction of the particle with the assistance of electron thickness. The observed hydrogen (<sup>1</sup>H)-NMR values agreed computed values. The in vitro antioxidant activity of 4NET and 4NPT compound was evaluated using DPPH radical scavenging assay. The investigated molecule possesses lower activity against *E.coli* with 19 mm at 80μL and *Candida albicans* with 15 mm at 80μL. To concentrate on bio-active applications, Docking was performed to recognize the binding energy between ligand and protein through hydrogen bond interaction with various anticancer proteins. A cytotoxic screening reveals title compound shows efficient response against SKMEL cancer cells lines.

**Keyword:** FTIR, UV-Vis, <sup>1</sup>H-NMR, DFT, TG-DTA, Molecular Docking.

PP-35	<b>Synthesis and structural characterization of aluminium doped magnesium oxide</b>
<p><b>S.N. Viji<sup>(1)</sup>, T.R Jeena<sup>(2)</sup></b></p> <p>1) M.Sc. Student 2) Assistant Professor, Department of Physics Nanjil Catholic College of Arts and Science, Kaliyakkavilai.</p> <p><b>Abstract</b></p> <p>Pure and 2 wt. % Al doped Magnesium oxide nanoparticles have been synthesized by co-precipitation method. The synthesized nanoparticles were analysed using X-ray diffraction technique. The structure, crystalline size, lattice parameter and micro strain of both pure and aluminium doped magnesium nanoparticles were found from the diffraction pattern. For both the samples XRD patterns revealed cubic structure of magnesium oxide. Also in the doped samples, the addition of aluminium ions are observed.</p>	

PP-36	<b>DFT studies and topology analysis of 1 acetyl – 2 (4 – isopropoxy – 3 - methoxyphenyl) cyclopropane</b>
<p><b>Jibin D<sup>1</sup>, S. Sijana<sup>2</sup>, M. Amalanathan<sup>3</sup>.</b></p> <p><sup>1</sup>M.Sc. Student, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>2</sup>Research Scholar, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p> <p><sup>3</sup>Assistant Professor, Department of Physics, Nanjil Catholic College of Arts and Science, Kaliyakkavilai, Kanyakumari, Tamil Nadu, India.</p>	

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The computational investigations on 1 acetyl-2(4-isopropoxy-3-methoxyphenyl) cyclopropane, were done using DFT/B3LYP/6-311G (d, Sp) basic set by Gaussian 09W software. The HOMO and LUMO energies, Ionisation potential (I), Electron affinity (A), Energy gap, chemical hardness ( $\eta$ ), chemical potential ( $\mu$ ), Electrophilicity Index ( $\omega$ ), Nucleophilicity Index (N), Global Softness (S), Additional Electronic Charges ( $\Delta N$ ) and Optical Softness ( $\sigma_s$ ) were calculated. The intra and intermolecular interaction exist within this compound is analyzed by different methods namely topology analysis ELF, LOL and RDG.

Keywords: DFT calculation, ELF, RDG.

<b>PP-37</b>	<b>Fluctuating radial solar wind</b>
<p><b>Rini Reshma Crass T<sup>1</sup>, Bidhu S<sup>2</sup></b></p> <p>Department of Physics</p> <p>1. PG student, Nanjil Catholic college of arts and science, Kaliyakkavilai</p> <p>2. Assistant Professor, Nanjil Catholic college of arts and science, Kaliyakkavilai</p> <p><b>Abstract</b></p> <p>Radial variations of solar wind during 1990-2009 are analysed. Using the data of Voyager 2 and Ulysses spacecrafts the studies extensively mentioned long and short term parameters respectively. Analysed the solar wind parameters, temperature, proton density and solar wind speed. Voyager 2 continues to explore the outer heliosphere as Ulysses studies the latitudinal dependence of the solar wind.</p> <p>Keywords: Solar wind, long and short term, solar parameter.</p>	

<b>PP-38</b>	<b>Relation between solar wind parameters and solar cycles-recent solar maxima</b>
<p><b>Jothika G.R<sup>1</sup>, Bidhu S<sup>2</sup></b></p> <p>Department of Physics</p> <p>1. PG student, Nanjil Catholic college of arts and science, Kaliyakkavilai</p> <p>2. Assistant Professor, Nanjil Catholic college of arts and science, Kaliyakkavilai</p> <p><b>Abstract</b></p> <p>Solar wind parameters are used to study the solar activity in different solar cycles. Solar wind parameters have strong connection with solar cycles. This is investigated for solar cycle 23 and 24. ACE and WIND spacecrafts data are used to determine the connection between solar wind plasma parameters and solar cycle. The solar wind parameters like solar wind velocity, density, temperature and magnetic field during 23 and 24 solar maximum activity phase are analyzed. In solar cycle 24, solar wind velocity and temperature have strong relation with solar cycle. But In solar cycle 23, solar wind density and magnetic field have good relation with solar cycle.</p> <p>Key words: solar wind parameters- velocity, density, temperature and magnetic field.</p>	



<b>PP-39</b>	<b>Characteristics of speed of solar cme's in 24 solar cycle</b>
<p style="text-align: center;"><b>Bramya V M<sup>1</sup>, Bidhu S<sup>2</sup></b></p> <p style="text-align: center;">Department of Physics</p> <ol style="list-style-type: none"> <li>1. PG student, Nanjil Catholic college of arts and science, Kaliyakkavilai</li> <li>2. Assistant Professor, Nanjil Catholic college of arts and science, Kaliyakkavilai</li> </ol> <p style="text-align: center;"><b>Abstract</b></p> <p>The properties and recent results on coronal mass ejections(CMEs), obtained from the Solar and Heliospheric Observatory (SOHO) during 2008–2015 are investigated. In Cycle-24, due to the reduced ambient pressure, CMEs expand anomalously. SOHO/LASCO CMEs, were obtained from the LASCO catalogue. The type of CMEs are determined using solar wind linear speed. We report on a comparison between space weather events that occurred around the two peaks in the sunspot number (SSN) during solar cycle 24. The two SSN peaks occurred in the years 2012 and 2014. Even though SSN was larger during the second peak, we find that there were more space weather events during the first peak.</p> <p>Keywords: coronal mass ejections, sunspot number, solar cycle</p>	

<b>PP-40</b>	<b>Slow solar wind fluctuations observations from ulysses orbit</b>
<p style="text-align: center;"><b>Jenisha<sup>1</sup> G, Bidhu S<sup>2</sup></b></p> <p style="text-align: center;">Department of Physics</p> <ol style="list-style-type: none"> <li>1. PG student, Nanjil Catholic college of arts and science, Kaliyakkavilai</li> <li>2. Assistant Professor, Nanjil Catholic college of arts and science, Kaliyakkavilai</li> </ol> <p style="text-align: center;"><b>Abstract</b></p> <p>During rising phase, maximum activity phase and declining phases of solar cycle 22 and 23, Ulysses' spotted slow solar wind. The spacecraft observed the slow solar wind in first orbit; during the decline phase of solar cycle 22, in second orbit; in polar region during the maximum phase of solar cycle 23 and in ecliptic region during the decline phase of solar cycle 23. When the polarity reversal takes place i.e; during maximum phase of solar cycle 23, slow wind was found in polar region. The multi-polarities have key-role for the formation of slow solar wind. The solar wind that emerges during the polarity reversal detected slow solar wind due to the high concentration of proton particle.</p> <p>Key words: Solar cycle, slow wind, multi-polarities.</p>	

<b>PP-41</b>	<b>Studies on organic 4-hydroxy benzophenone single crystals</b>
<p style="text-align: center;"><b>M.L.Lima Rose<sup>a,b</sup>, T.Suthan<sup>c</sup>, Gnanasambandam<sup>a</sup></b></p> <p><sup>a</sup>Research Scholar( Reg.No18133152132034), Department of Physics, S.T. Hindu College, Nagercoil – 629002, India</p> <p><sup>b</sup>Assistant Professor, Department of Physics, Malankara Catholic College, Mariagiri – 629153, India</p> <p><sup>c</sup>Assistant Professor, Department of Physics, Lekshmipuram College of Arts and Science, Neyyoor – 629802, India</p> <p><sup>a</sup>Associate Professor, Department of Physics, S.T.Hindu College, Nagercoil - 629002, India</p>	



# നിരക്കാഴ്ചകൾ

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## മലയാളസിനിമയിലെ സ്ത്രീചരിത്രം

ബിജി. ആർ.

ഇരുപതാം നൂറ്റാണ്ടിലെ ഏറ്റവും ശക്തമായ ജനസ്വാധീനമുള്ള കലാരൂപമാണ് സിനിമ. കാലാതീതമായ കലാരൂപങ്ങളെ നിലനിർത്തുന്നതിൽ ഈ മാധ്യമം ഏറെ ശ്രദ്ധചെലുത്തുന്നു. ബോധപൂർവ്വം സ്ത്രീനിൽ കാണിക്കുന്ന കാഴ്ചകൾ പ്രേക്ഷകനിലേയ്ക്ക് സംവഹിച്ചാണ് സിനിമ അതിന്റെ ധർമ്മം നിർവ്വഹിക്കുന്നത്. മലയാളത്തിലെ ആദ്യസിനിമ ദക്ഷിണേന്ത്യയിലെ മറ്റു ഭാഷകളിലിറങ്ങിയ സിനിമകളിൽനിന്നും പ്രമേയത്തിലും സാമൂഹിക സമകാലിക കാഴ്ചപ്പാടിലും വ്യത്യസ്ഥത പുലർത്തിയിരുന്നു. ആദ്യകാല സ്ത്രീപ്രേക്ഷകരെയും അവരുടെ സിനിമാ സമീപനരീതികളെയും കുറിച്ചുള്ള വിവരങ്ങൾ ഏറെക്കുറെ ലഭ്യമല്ല. 1926 ൽ കൊല്ലം പട്ടണത്തിലെ സിനിമാശാലകളുടെ പ്രവർത്തനം തങ്ങളുടെ സൗകര്യത്തിനാകണം എന്നാവശ്യപ്പെട്ടുകൊണ്ട് ഫാക്ടറിത്തൊഴിലാളികളായ സ്ത്രീകൾ സമരം ചെയ്തതായി മലയാള മനോരമ റിപ്പോർട്ട് ചെയ്തിട്ടുണ്ട്.

കാലങ്ങൾ കുറേകഴിഞ്ഞിട്ടും സ്ത്രീ പ്രാതിനിത്യം സിനിമയുടെ അണിയറയിൽ വളരെ കുറവാണ്. വനിതകൾ ധൈര്യമായി കടന്നു ചെല്ലുന്ന തൊഴിൽ മേഖലയായി സിനിമ മാറണം. സാഹിത്യത്തിലെത്തുപോലെ സിനിമയിലും സ്ത്രീകൾ തങ്ങളുടേതായ ഇടം നേടിയെടുക്കുന്നതിനുള്ള ശ്രമം നടത്തി കൊണ്ടിരിക്കുകയാണ്. സിനിമാനിർമ്മാണത്തിന്റെയും സംവിധാനത്തിന്റെയും സാങ്കേതിക ഉപകരണങ്ങളുടെയും വിതരണത്തിന്റെയും എല്ലാ മണ്ഡലങ്ങളിലും മലയാളസിനിമാരംഗത്ത് പുരുഷ മേൽക്കോയ്മയാണ് കാണാൻ സാധിക്കുന്നത്.

മലയാളസിനിമയിൽ സ്ത്രീചിത്രത്തിന്റേ തുടക്കം ആദ്യനായികയുടെ നേരേ നടന്ന പ്രേക്ഷക സമൂഹത്തിന്റേ ആക്രമണത്തിൽനിന്നായിരുന്നു. ആദ്യ മലയാളസിനിമ ആരംഭിക്കുന്നത് 1928 ൽ ആണ്. വിഗതകുമാരൻ എന്ന സിനിമയിലൂടെ ജെ. സി. ദാനിയേൽ ആണ് ആദ്യ സിനിമാനൂഭവം പ്രേക്ഷകർക്ക് നൽകിയത്. ചലിച്ചുകൊണ്ടു തുടങ്ങിയ ചിത്രങ്ങളുടെ ആരംഭം മുതൽക്കുതന്നെ സ്ത്രീകൾ തങ്ങളുടെ സാന്നിധ്യം ഉറപ്പു വരുത്തിയിരുന്നു. പി.കെ.

## തീരക്കാഴ്ചകൾ

റോസിയായിരുന്നു ആദ്യ സിനിമാനായിക. സരോജം എന്ന കഥാപാത്രത്തെ അവതരിപ്പിച്ചുകൊണ്ടാണ് പി. കെ. റോസി ചലച്ചിത്രലോകത്തെത്തുന്നത്. പുതിയ കാലത്തിന്റ കലാരൂപമായി സിനിമയെ മനസ്സിലാക്കിയ സംവിധായകനായിരുന്നു ജെ. സി. ദാനിയേൽ. എന്നാൽ സാമൂഹിക യഥാസ്ഥിതികതയും ചലച്ചിത്ര യാഥാർഥ്യവും രണ്ടായി കാണാത്തവരുടെ മുന്നിലേക്കാണ് അദ്ദേഹത്തിനു തന്റെ സിനിമയെ പ്രദർശിപ്പിക്കേണ്ടിവന്നത്. സവർണ്ണ കഥാപാത്രമായി ഒരു കീഴ്ജാതിക്കാരി അഭിനയിച്ചു എന്നുള്ള കാരണത്താലായിരുന്നു നായികയോടുള്ള ക്രൂരമർദ്ദനം. ഇവിടെ നിന്നാണ് മലയാള സിനിമയിലെ സ്ത്രീ ചരിത്രം ആരംഭിക്കുന്നത്. അതിനുശേഷം മാർത്താണ്ഡവർമ്മയുടെ ദേവകിഭായിയും പട്ടമ്മാളും (1933) ആദ്യ ശബ്ദസിനിമയായ ബാലനിലെ എം. കെ. കമലവും പള്ളുകുത്തി ലക്ഷ്മിയും (1938) ഇതാനാംബികയിലെ സി. കെ. രാജവും സീതാലക്ഷ്മിയും (1941) അഭിനയത്തിന്റ നവ്യപ്രതിഭകളായി പ്രത്യക്ഷപ്പെട്ടു. 1948 ൽ പുറത്തിറങ്ങിയ നിർമ്മയിലൂടെയാണ് മലയാളത്തിലെ ആദ്യ പിന്നണിഗായിക ഉണ്ടാകുന്നത്. പി. ലീലയും സരോജിനിയുമായിരുന്നു ആദ്യ ഗായികമാർ

സിനിമയിൽ എല്ലാത്തരത്തിലുമുള്ള സ്ത്രീപുരുഷ ഇടപെടലിന്റ നിയന്ത്രണം അടക്കിവച്ചിരിക്കുന്നത് പുരുഷന്മാരാണ്. എളുപ്പം മനസ്സ് വിഷമിപ്പിക്കുന്നവരും പെട്ടെന്നുകരയുന്നവരും എപ്പോഴും സംരക്ഷണവും വൈകാരികസുരക്ഷിതത്വവും ആഗ്രഹിക്കുന്നവരും വീടിനുള്ളിൽ തങ്ങിക്കൂടുന്നവരും പ്രശ്നങ്ങളെ അഭിമുഖീകരിക്കാനാവാത്തവിധം അമിതമായ ഉത്കണ്ഠയുള്ളവരും നിശബ്ദമായി എല്ലാം സഹിക്കുന്നവരും താങ്ങാനാകാത്ത വേദനയിൽ മരണത്തെ ആശ്രയിക്കുന്നവരുമാണ് സ്ത്രീകൾ എന്ന് ആദ്യകാല സിനിമകൾ കാണിക്കുന്നു.

പുതിയ കാലഘട്ടത്തിലെ മലയാള സിനിമകൾ നായകന്റ നിഴലായിട്ട് നായികയെ അണിനിരത്തിയപ്പോൾ മുറപ്പെണ്ണ് (1956) തുലാഭാരം (1968) സ്ഥാനാർത്ഥി സാറാമ്മ (1966) കള്ളിച്ചെല്ലമ്മ (1969) ആദ്യകിരണങ്ങൾ (1964) അഗ്നിപുത്രി (1967) ചെമ്മീൻ (1965) അശ്വമേധം (1967) കാവ്യമേള (1965) തുടങ്ങിവയിലൂടെ അറുപതുകളിലെ സിനിമകൾ വ്യതിതമുള്ള സ്ത്രീകഥാപാത്രാൾക്കു പിറവിക്കൊടുത്തു. ഏറ്റവും കൂടുതൽ സിനിമകളിൽ അഭിനയിച്ച

നായികയെന്നനേട്ടം ഷീലയ്ക്കു കൈവരിക്കാനായത് 60 കളിലെ സിനിമകൾപുലർത്തിയ വ്യക്തമായ സ്ത്രീപുരുഷ മുന്നേറ്റത്തിന്റെ പ്രതിഫലനമാണ്. സ്ത്രീകൾക്ക് പ്രാധാന്യമുള്ള വിരലിലെണ്ണാവുന്ന സിനിമകൾ ഇറങ്ങിയ 21-ാം നൂറ്റാണ്ടുമായി താരതമ്യം ചെയ്യുമ്പോൾ അറുപതുകൾ മികച്ച സ്ത്രീ കഥാപാത്രങ്ങളെ മലയാളസിനിമയ്ക്ക് നൽകിയ കാലഘട്ടമായി തലയുയർത്തി നിൽക്കുന്നു.

സ്ത്രീ ശാക്തീകരണത്തിന്റെ വ്യത്യസ്ത മുഖങ്ങൾ പ്രകടമാക്കുന്ന ധാരാളം സിനിമകൾ 21-ാം നൂറ്റാണ്ടിൽ ഉണ്ടായിക്കൊണ്ടിരിക്കുന്നു. അവയിൽ ചില ഉദാഹരണങ്ങൾ '22 ഫീമെയിൽ കോട്ടയം' അതിലെ ടെസ്സ എന്ന കഥാപാത്രം തന്നെ ചതിച്ചവരോട് പകരം ചോദിക്കുമ്പോൾ ഓരോ സ്ത്രീയുടെയും അഭിമാനത്തിന്റെ നിമിഷമാണ് പ്രകടമാകുന്നത്. അതുപോലെ 'സക്കറിയയുടെ ഗർഭിണികൾ' എന്ന സിനിമയിൽ അനുഷ്ഠിച്ച അവതരിപ്പിച്ച കഥാപാത്രം ഇത്തരത്തിൽ ശക്തമായ ഒട്ടനവധി സ്ത്രീ കഥാപാത്രങ്ങൾ മലയാളസിനിമയിൽ ഉണ്ടാകുന്നുണ്ട്. 'ടേക്ക് ഓഫ്', 'ഹൗ ഓൾഡ് ആർ യൂ', 'ഉദാഹരണം സുജാത', 'ഒഴിമുറി', 'കളിമണ്ണ്' പോലുള്ള സിനിമകൾ സ്വാഭാവികമായ ആഖ്യാനശൈലികൊണ്ടും യാഥാർത്ഥ്യത്തോടു അടുത്തു നിൽക്കുന്ന അവതരണശൈലികൊണ്ടും ശ്രദ്ധേയമായി നിലകൊള്ളുന്നു. അതുകൊണ്ടുതന്നെ ശക്തമായ സ്ത്രീ കഥാപാത്രങ്ങൾ മലയാള സിനിമയിൽ ഇനിയും ഉണ്ടാകുമെന്നു പ്രതീക്ഷിക്കാം

**ഉപസംഹാരം :**

ഓരോ കാലഘട്ടത്തിന്റെയും സാംസ്കാരിക രൂപീകരണം മനുഷ്യനിൽ ഏറെ പ്രതിഫലനം സൃഷ്ടിക്കാറുണ്ട്. അനൂറ്റാണ്ടിലേറെയായ് സമൂഹത്തിന്റെ പ്രത്യയശാസ്ത്രപരമായ താല്പര്യങ്ങളുടെയും അധികാരബന്ധങ്ങളുടെയും സ്ഥാപനവത്കരണത്തിനായുള്ള ജനപ്രിയമാധ്യമമായി സിനിമ പരിണമിച്ചു. അതുകൊണ്ടുതന്നെ സാമൂഹികമായ മാറ്റങ്ങൾ സിനിമയെയും തിരിച്ചും വ്യക്തമായ സ്വാധീനം ചെലുത്തുന്നു. സിനിമയ്ക്കുള്ളിൽ പ്രവൃത്തിക്കുന്നവരുടെയും ചിന്തകൾ പൊരുത്തപ്പെടുമ്പോഴാണ് ഒരു ജനപ്രിയ സിനിമ ഉണ്ടാകുന്നത്.

മലയാളസിനിമയിൽ സ്ത്രീകൾ തങ്ങളുടെ അവകാശങ്ങൾ നേടിയെടുക്കുന്നതിനായി ശക്തമായപോരാട്ടം നടത്തുന്ന ഒരു



## തീരക്കാഴ്ചകൾ

കാലഘട്ടമാണിത്. സ്ത്രീകൾക്കായി ശബ്ദം ഉയർത്തുന്നവർ ഒറ്റപ്പെടുന്നതും അവരുടെ ആവശ്യങ്ങൾക്ക് കേൾവിക്കാരില്ലാത്തതും ആയ ഒരു സാഹചര്യത്തിൽ അവകാശങ്ങൾ നേടിയെടുക്കാൻ ചിലരെങ്കിലും ഇറങ്ങിത്തിരിച്ചിരിക്കുന്നത് ശ്രദ്ധേയമാണ്. ഏതായാലും വ്യക്തികൾ തങ്ങളുടെ അവകാശത്തിന്റെയും സ്വാതന്ത്ര്യത്തിന്റെയും ആവിഷ്കരണ സാധ്യതകൾ ഉപയോഗപ്പെടുത്തുന്നത് മലയാളസിനിമയിൽ ശുഭ സൂചന നൽകുന്നു.

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# നിരക്കാഴ്ചകൾ

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# ഭാരതിരാജാ സാമൂഹ്യസിനിമാ വീക്ഷണം

എം. ജീനാമോൾ തങ്കമണി

ആമുഖം :

തമിഴ് ചലച്ചിത്ര മേഖല നീണ്ട ചരിത്ര സംഭവങ്ങൾ ഉൾക്കൊള്ളുന്നതാണ്. 1918 - ൽ ആർ. നടരാജമുദലീയർ നിർമ്മിച്ച നിശ്ശബ്ദ പുറത്തിറങ്ങിയ ആദ്യത്തെ തമിഴ് ശബ്ദചലച്ചിത്രം 'കാളിദാസ്' ഇന്നും ഏറെ പ്രസക്തി തരുന്നതാണ്. തമിഴ് സിനിമയുടെ പിതാവ് എന്നറിയപ്പെടുന്ന കെ. സുബ്രഹ്മണ്യം 1934 - ൽ സംവിധാനം ചെയ്ത 'പവിഴകൊടി' എന്ന ചലച്ചിത്രം 'ത്യാഗ രാജഭാഗ വതരെ' തമിഴ് സിനിമയുടെ ഉച്ചത്തിൽ എത്തിച്ചു.

ആദ്യകാല തമിഴ് സിനിമ പുരാണകഥകളെയും, ചരിത്ര സംഭവങ്ങളെയും സാഹിത്യങ്ങളെയും സ്പർശിച്ചു കൊണ്ട് വ്യാഖ്യാന രീതികളിലാണ് ആവിഷ്കരിച്ചത്. 1977 വരെ ഇത് ഒരു തുടർകഥപോലെ നടന്നുകൊണ്ടിരുന്നു. അതേവർഷം പ്രകാശനം ചെയ്ത 'പതിനാറു വയതിനിലെ' എന്ന ചിത്രം ആദ്യത്തെ 'ഔട്ട്ഡോർ' ചിത്രമായി അറിയപ്പെട്ടു. ഈ സിനിമയുടെ കഥ, തിരക്കഥ, സംഭാഷണം, സംഗീതം, പാട്ട് എന്നിവയെല്ലാം തമിഴ് സിനിമാമേഖലയിലെ അവിസ്മരണീയമായ കാഴ്ചപാടായിരുന്നു. അതോടൊപ്പം ഈ ചിത്രം പ്രേക്ഷകരെ ഗ്രാമാന്തരീക്ഷത്തിന്റെ വശ്യതയിലേക്ക് കൊണ്ടെത്തിക്കുന്നു.

തമിഴ് സിനിമാമേഖലയെ 'പതിനാറുവയതിനു' മുമ്പും പിമ്പും എന്നു രണ്ടായിതിരിക്കുന്നു. തമിഴ് സിനിമയിൽ ഈ ഒരു മാറ്റത്തിനു പിന്നിൽ പ്രവർത്തിച്ചത് 'ഭാരതിരാജ' എന്ന 'ചിന്ന സ്വാമിയാണ്'. അദ്ദേഹത്തിന്റെ സിനിമയിൽ കഥാപാത്രങ്ങൾ നാടൻ ജീവിതശൈലിയിലേക്ക് ഇഴുകിച്ചേരുന്നു. അതോടൊപ്പം തന്നെ സമൂഹത്തിൽ നിലനിൽക്കുന്ന അന്ധവിശ്വാസങ്ങളെയും അനാചാരങ്ങളെയും കീറിമുറിച്ച് സിനിമയിലൂടെ ചൂണ്ടിക്കാണിക്കുന്നു.

ഭാരതിരാജാ ജീവചരിത്രം

പെരിയനായദേവൻ കുറുത്തമ്മ ഇവരുടെ മകനായി 1941 - ൽ തേനി ജില്ലയിൽ സുന്ദരമായ അല്ലിനഗരം എന്ന ഗ്രാമത്തിൽ

ഭാരതിരാജാ ജനിച്ചു. സ്കൂളിൽ പഠിക്കുന്നകാലത്തെ സാഹിത്യ കൃതികൾ ആസ്വദിച്ചു വായിക്കുകയും നാടകങ്ങൾ രംഗത്തു വരുത്തിക്കുകയും ചെയ്തിരുന്നു. പിന്നീട് സിനിമയിൽ ശ്രദ്ധ ചെലുത്തിയ അദ്ദേഹം ചെന്നൈയിലെത്തി അന്നത്തെ പ്രശസ്ത തമിഴ് സംവിധായകനായിരുന്ന പുല്ലയ്യായുടെ സഹസംവിധായകനായി സിനിമാമേഖലയിൽ കന്നുവന്നു. പിന്നീട് തെലുങ്കു ചലച്ചിത്ര സംവിധായകൻ മുല്ലയ്യാ, മലയാളസിനിമാ സംവിധായകനായിരുന്ന കൃഷ്ണൻനായർ തമിഴിലെ എ. ജഗന്നാഥൻ തുടങ്ങിയവരുടെയുടെ സഹസംവിധായകനായി പ്രവർത്തിച്ചു. ഭാരതി രാജായുടെ പത്നി ചന്ദ്രലീലാവതി മക്കൾ മനോജ്, ജനനി. മനോജ് തമിഴ് സിനിമാ സംവിധായകരംഗത്ത് പ്രവർത്തിക്കുന്നു. 1977 - ൽ പുറത്തിറങ്ങിയ 'പതിനാറുവയതിനിലേ' ആണ് ഭാരതി രാജാ ആദ്യമായി സംവിധാനം ചെയ്ത ചിത്രം. കാതൽ ഓവിയം, നിഴൽകൾ, പുതിയ വാർപ്പുകൾ, പന്നീർ പുഷ്പങ്ങൾ, വേദം പുതിയ, അന്തിമന്താമൈ കാതൽ പൂക്കൾ, കുറുത്തമ്മ തുടങ്ങി നിരവധി ചിത്രങ്ങൾ അദ്ദേഹം സംവിധാനം ചെയ്തിട്ടുണ്ട്. 2004 - ൽ പത്മശ്രീ, 1982 - ൽ 'സീതകൊക്ക ചിലുക്ക്' എന്ന തെലുങ്കു ചിത്രത്തിന് മികച്ച സംവിധായകനുള്ള പുരസ്കാരവും, 1988 - ൽ 'വേദം പുതിയ' എന്ന ചിത്രത്തിന് മികച്ച സാമൂഹ്യ പ്രതിബദ്ധതയുള്ള പുരസ്കാരവും, തുടർന്ന് തമിഴ്നാട് സർക്കാരിന്റെ 'കലൈമാമണി' അവാർഡും ലഭിച്ചു.

#### സാമൂഹ്യ ചിത്രങ്ങളും സ്ത്രീ സങ്കല്പങ്ങളും

ഗ്രാമാന്തരീക്ഷത്തെയും അവിടുത്തെ ജനജീവിതരീതിയെയും സിനിമയിലൂടെ ആവിഷ്കരിച്ച ഭാരതിരാജായുടെ ചിത്രത്തിൽ സ്ത്രീ കഥാവിഷ്കരണത്തിന് ശക്തമായ സ്ഥാനമാണ് നൽകിയിരിക്കുന്നത്. ആത്മയൈര്യവും, വീരവും, വിദ്യാഭ്യാസവും സ്ത്രീ ജീവിതത്തിൽ അനിവാര്യമാണെന്ന് ചലച്ചിത്രങ്ങളിലൂടെയും അദ്ദേഹം സൂചിപ്പിച്ചു. കൊടിയ ക്രൂരതയ്ക്ക് ഇരയാകുന്ന സ്ത്രീസമൂഹം അന്ധതയുടെ മറവിൽനിന്നും നീതിക്കുവേണ്ടി രംഗത്തേക്ക് വരേണ്ടതാണെന്ന് ഭാരതിരാജ 'പതിനാറുവയതിനിലേ' പുതുക്കുമ്പെൺ, 'കിഴക്കുചീമയിലെ' തുടങ്ങിയ സിനിമയിലൂടെ അവതരിപ്പിച്ചു. തമിഴ് സിനിമാമേഖലയിൽ ഭാരതി രാജായുടെ ചിത്രങ്ങൾക്ക് ശക്തമായ കാഴ്ചപ്പാടാണുള്ളത്. 'വേദം പുതിയ' (1987) എന്ന ചിത്രത്തിൽ ബാലുദേവരോട് കണ്ണൻ എന്ന പയ്യൻ ചോദിക്കുന്ന ചോദ്യം ശ്രദ്ധേയമാണ്. 'നാൻ കരയേറിയേൻ നീക്ക



എപ്പോൾ കരയേറ പോറേൾ' ഈ വാക്യം സമൂഹത്തിൽ ജാതിയുടേയും മതത്തിന്റേയും പേരിലുള്ള പോരാട്ടങ്ങൾക്ക് ഉത്തരമാണ്. സമൂഹത്തിൽ ഇന്നും നിലനിൽക്കുന്ന അന്ധതയുടെ മറന്നീക്കം ചെയ്യാൻ ഭാരതിരാജ സിനിമയിലൂടെ പ്രവർത്തിച്ചു.

തമിഴ്നാട്ടിലെ മദ്ധ്യതലസ്ഥാനങ്ങളായ മധുര, തേനി, ഉസലാംപട്ടി അതിനെ ചുറ്റിയുള്ള ഗ്രാമങ്ങളിൽ നവജാത ശിശുക്കളെ കൊല്ലുന്നരീതി പല വർഷങ്ങളായി നടന്നുകൊണ്ടിരുന്നു. 1980 കളിലൊക്കെ ഈ പ്രദേശത്ത് സ്ത്രീകളുടെ ജനസംഖ്യാനുപാതം വല്ലാതെ കുറഞ്ഞിരുന്നു. കടുത്ത ദാരിദ്ര്യം തന്നെയായിരുന്നു പ്രശ്നം. സ്ത്രീധന സമ്പ്രദായം ശക്തമായ തമിഴ്നാട്ടിൽ രണ്ടുപെൺകുട്ടികൾക്കു പിന്നാലെ അടുത്തതും പെണ്ണായാൽ ആ കുഞ്ഞിനു മരണം ഉറപ്പായിരുന്നു. ഭാരതി രാജായുടെ ദേശീയ അവാർഡിനർഹമായ 'കറുത്തമ്മ'യും പറയുന്നത് തമിഴ്നാട്ടിലെ പെൺ ശിശുക്കൊലകളെ കുറിച്ചായിരുന്നു. പാൽമണം മാറാത്ത കുട്ടികളെ കൊല്ലാൻ വയറ്റാട്ടികളും നാട്ടിൻ പുറങ്ങളിലുണ്ടായിരുന്നു. ഇത് ബിബിസിയിൽ ഡോക്യുമെന്ററി ആവുകയും അന്നത്തെ സർക്കാർ പെൺകുട്ടികളുടെ സുരക്ഷയ്ക്കായി പ്രവർത്തിച്ചു. പെൺകുട്ടികളുടെ പഠന മടക്കമുള്ള എല്ലാ കാര്യങ്ങളും സൗജന്യമാക്കുകയും ചെയ്തു. അതോടെ തമിഴ്നാട്ടിൽ നിന്ന് പെൺശിശുക്കൊലകൾ പൂർണ്ണമായും ഇല്ലാതായി.

'തായ്പാലെ നീ കുടിക്ക തലയെഴുത്ത് ഇല്ലയടി

കള്ളിപാലെ നീ കുടിച്ച് കണ്ണുറങ്ങ് നല്ലപടി'.

'അടുത്ത ഒരു ജന്മം വന്തു ആണാകെ നീ പിറന്താ

ഭൂമിയിലെ എടമിരുക്കും പോയി വാടി അന്നക്കിളി'

ഭാരതിരാജായുടെ കറുത്തമ്മയിൽ കുഞ്ഞിന് കള്ളിപ്പാൽ കൊടുക്കുന്നതിനുമുമ്പുള്ള വായ്ത്താരിയാണ് ഇവിടെ ചേർത്തിരിക്കുന്നത്. ഈ ചിത്രത്തിന്റെ അവസാന രംഗങ്ങൾക്കു മുമ്പുവരെ അപമാനിക്കപ്പെടുന്ന സ്ത്രീത്വമാണ് കാണാൻ സാധിക്കുന്നത്. തമിഴ്നാട്ടിലെ മദ്ധ്യതലസ്ഥാനത്തു നടന്ന യഥാർത്ഥ സംഭവങ്ങളുടെ അടിസ്ഥാനത്തിലാണ് ഈ ചിത്രം ഉടലെടുത്തത്.



ഗ്രാമീണാന്തരീക്ഷം - പ്രണയബന്ധങ്ങളുടെ പശ്ചാത്തലത്തിൽ

ഭാരതി രാജായുടെ സാമൂഹ്യചിത്രങ്ങളിലും സ്ത്രീ സങ്കല്പം ശക്തമായി ആവിഷ്കരിക്കുന്ന ചിത്രങ്ങളിലും ഗ്രാമീണ സുഗന്ധം നിറഞ്ഞുനിൽക്കുകയാണ്. ആ നാടൻ തനിമയെ ഒപ്പിയെടുത്തവതരിപ്പിക്കുമ്പോൾ ഒരു സമൂഹത്തിന്റെ സംസ്കാരമെന്ന ഇഴുകിപ്പേരുന്നൂ. ഹൃദയസ്पर्ശമുള്ള അദ്ദേഹത്തിന്റെ സിനിമയിൽ ഇതുപോലുള്ള രംഗങ്ങൾ ഒഴിച്ചുകൂടാനാവാത്തതാണ്.

പ്രകൃതിയുടെ വശ്യമായ സൗന്ദര്യത്തിൽ അടർത്തിയെടുത്ത ഒരു ചിത്രമാണ് 'കിഴക്കുപീമയിലെ'. മനുഷ്യ ജീവിതത്തിൽ ചിലസമയം സ്വാർത്ഥഭാവങ്ങൾ ഉടലെടുക്കുകയും അത് കൂടുതൽ കൂടുതൽ തിന്മയിലേക്ക് കടക്കുന്നതും ഇന്നത്തെ സമൂഹത്തിൽ സാധാരണമാണ്. സഹോദരി സഹോദരന്റെ സ്നേഹബന്ധങ്ങൾ കിടയിലും, ഇരുകൂടുംബങ്ങൾക്കിടയിലും ഈ ഒരു വിഷയം കടന്നുവരുന്നു.

വൈവിധ്യമുള്ള വിഷയങ്ങൾ സ്വീകരിച്ച് അത് ജനങ്ങളുടെ മുമ്പിൽ തന്മയത്വഭാവത്തോടെ അവതരിപ്പിക്കുന്ന സംവിധായകനാണ് ഭാരതിരാജ. സമൂഹത്തിലെ ചില മാറ്റങ്ങൾ ന്യായമായ ആവശ്യങ്ങൾക്കുവേണ്ടിയുള്ളതാണ്. ഈ മാറ്റങ്ങൾ ചിലപ്പോൾ മനസ്സിനേറ്റ ഉണങ്ങാത്ത മുറിവായിത്തീരുന്നു. ഈ ഒരു സൂചനയിലൂടെ മുന്നോട്ടുപോകുന്ന മഹത്തരമായ സൃഷ്ടിയാണ് 'ബൊമ്മലാട്ടം' എന്ന ചിത്രം.

പ്രണയത്തിന്റെ കഥപറയുന്ന ചിത്രങ്ങളാണ് 'താജ് മഹൽ', 'നാടോടിതെന്തു'. പവിത്രമായ സ്നേഹബന്ധത്തിനുമുമ്പിൽ മരണംകൂടി അകന്നുമാറുന്ന കാഴ്ചയാണ് ഈ സിനിമകളിലൂടെ യാഥാർത്ഥ്യമാകുന്നത്. തമിഴ് സിനിമയിൽ നിലനിൽക്കുന്ന ജാതി മതങ്ങളെക്കുറിച്ചുള്ള കാഴ്ചപ്പാട് പ്രത്യക്ഷമായും, പരോക്ഷമായും വിവിധ സിനിമകളിൽ ഭാരതിരാജ അവതരിപ്പിച്ചു. നിറം, വസ്ത്രം, ശരീരഘടന, കഥാപാത്ര സവിശേഷതകളെല്ലാം ഒരോ സിനിമയുടെ ഘടനയ്ക്ക് അനുസരിച്ച് ആവിഷ്കരിച്ചു.

ഭാരതിരാജായുടെ മികച്ച ചിത്രങ്ങളിലൊന്നാണ് 'അന്തിമ ന്താറെ' സ്വാതന്ത്രത്തിനുവേണ്ടി ജീവിതം ഉഴിഞ്ഞുവച്ച അറിയപ്പെട്ട ഒരു വ്യക്തിയുടെ പിന്നീടുള്ള ദയനീയമായ ജീവിതാവസ്ഥയെക്കുറിച്ച്

## തീരാക്കാഴ്ചകൾ

ഈ കഥ പ്രതിപാദിക്കുന്നു. 'എൻ ഉയിർ തോഴൻ' എന്ന ചിത്രത്തിൽ തന്റെ ചുറ്റുപാടിൽ ഒരുങ്ങികൂടി കഴിയുന്ന മനുഷ്യന്റെ ജീവിതത്തിൽ ഭാഷ്ട്രീയം കടന്നുകയറുമ്പോൾ ഉണ്ടാകുന്ന ഊരാക്കുടക്കുകളാണ് പ്രതിഫലിച്ചിരിക്കുന്നത്. ഇങ്ങനെ വ്യത്യസ്തമായ ചിന്തകളിലൂടെ കടന്ന് നിറപ്പകിട്ടാർന്ന നല്ല ചിത്രങ്ങൾ തമിഴ് ഭാഷയ്ക്കു നൽകിയ സംവിധായകനാണ് ഭാരതിരാജാ.

### ഉിസംഹാരം

തമിഴ്നാട്ടുകാർ 'ഇയക്കുനർ ഇമയം' എന്ന് സ്നേഹ പൂർവ്വം വിളിക്കുന്ന ഭാരതിരാജാ തമിഴ് ജനതയുടെ സാമൂഹ്യ പ്രശ്നങ്ങളെ ആവിഷ്കരിച്ച് ചലച്ചിത്രങ്ങളിലൂടെ പുതിയ മാറ്റങ്ങൾ കൊണ്ടുവരാൻ ശ്രമിച്ചു. ഓരോ ചിത്രങ്ങളും തൊഴു കൈയോടെ 'എൻ ഇനിയ തമിഴ് മക്കളേ' എന്ന് ഗാംഭീര്യ സ്വരത്തോടെ ആരംഭിക്കുന്നു. ലോക സിനിമാവിപണിയിൽ ഭാരതിരാജായുടെ ചിത്രങ്ങൾ ശ്രദ്ധേയമാണ്. അദ്ദേഹത്തിന്റെ ഓരോ ചിത്രങ്ങളും സമൂഹത്തിന് ഒരു പുതിയ അവബോധം സൃഷ്ടിക്കുന്നവയാണ്.

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2. Film Acting Film Technic -Study Vselovod Pudovikin (First Edition 2009)
3. Life History of Bharathiraja - Youtube Channel





# सुर सरिता

(कविता संकलन)

संपादक : डॉ.पी.लता



# सुर सरिता

संपादक: डॉ.पी.लता



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डॉ. कार्तिका.एस.के

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साइन्स, कलिङ्क्काविलै, कन्याकुमारी।

फोन- 9633398456

कल तक सब कुछ

वह था।

उसके बिना जो ज़िंदगी

कभी सोचा नहीं,

आज वह नहीं रहा।

तो...

फिर भी जीना पड़ा,

उसके बिना ।

यही है ज़िंदगी...

## 66 कौन है नारी ?

डॉ. कार्तिका.एस.के

कौन है नारी ?

वह जननी है ,

वह माता है ,

सहनशील है ।

कभी किसी ने देखा है ईश्वर को?

कहते हैं स्रष्टा, है वह तो

कौन देती है सृष्टि को रूप-आकार ?

वह करती है एक नारी ।

तभी कहती है उसे माता ।

सब करते हैं ईश्वर की पूजा ।  
लेकिन नारी की ?

एक नारी झेलती है बहुत कुछ  
कोई पूछता नहीं ! क्यों ?  
अगर पूछे तो, मिलेगा उत्तर  
नारी है ।  
करना पड़ेगा सबका सहन ।

जब बच्ची हो, तो  
कहती है लड़की है  
रुको, उसीके बाद ।  
ससुराल जाती, तो  
सब कहते हैं तू औरत है  
सब के बाद ।

अपनों से भी  
नारी होती है पीछे,  
क्यों ?

एक ज़माना ऐसा था,  
किसी ने किया नारी का  
अपमान, तो  
रक्षा करने आते थे  
कृष्ण, ईसा जैसे लोग ।

आज क्या-क्या होते हैं, नारी के साथ  
अत्याचार, अपमान, बलात्कार...  
बचाव करने को, कोई ना आते हैं ।

हम नारियाँ भी हैं जीव,  
हमें भी होते, दुख, दर्द और एहसास।  
हमें चीर-फाड़ करनेवाले  
क्यों न सोचते ?  
तुम्हारा भी हुआ है जन्म,  
एक नारी की कोख में।

किधर गया अपना भारतीय संस्कार?  
किधर गया रक्षा का वलय ?  
किधर गया न्यायालयों का न्याय ?  
सब बेकार हैं ...बेकार ...

एक अनुरोध है कि  
हमें चाहिए सिर्फ,  
स्वतंत्रता से जीने का अधिकार ।  
स्वतंत्रता से चलने का अधिकार ।  
निडरता से कहीं जाने का अधिकार।

तभी मैं कह सकूँगी,  
मैं एक नारी हूँ ...  
मैं एक औरत हूँ ...



## 67 कोरोना कहर

डॉ. कार्तिका.एस.के

क्या हाल है ?

जियेंगे या मरेंगे ?

यही एक सवाल है ।

आजकल पृथ्वी में

फैला है एक वायरस

उसका नाम है कोरोना।

रेंगता था पहले,

उड़ रहा है अब।

क्या होगा कल ?

पता नहीं !

छोटा है या बड़ा

गरीब है या अमीर

गाँव है या नगर

किसी भी रंग में

किसी भी स्थान में

फैलेगा सब कहीं ।

सबको पहनवाया मास्क,

सबको पकड़वाया सैनिटाइज़र,

सबको बंदकर दिया घर के भीतर।

आजकल किसी को भी

न जाना है मंदिर ,  
न खाना है फास्ट फुड,  
न जाना है सिनेमा घर,  
क्यों ?  
सबको डर है कोरोना से ..

अस्पताल में  
बिस्तर भी नहीं  
अस्पताल में आते रोगी  
मरते हैं डॉक्टर पहुँचने के पहले  
हालत इतनी बिगड़ गयी  
श्मशान में शव को भी  
क्यू है।

मेरा यही सवाल है  
वह दिन आएगा कभी  
मास्क बिना जाना  
सैनिटाइजर को छोड़ना  
सबको घर से बाहर जाना  
दोस्तों के साथ खेलना  
सबको गले लगाना  
आदि करने का  
आएगा वह दिन..  
आएगा वह दिन..  
यही एक हौसला है ।