

Home (<http://ipindia.nic.in/index.htm>) About Us (<http://ipindia.nic.in/about-us.htm>) Who's Who (<http://ipindia.nic.in/whos-who-page.htm>)  
 Policy & Programs (<http://ipindia.nic.in/policy-pages.htm>) Achievements (<http://ipindia.nic.in/achievements-page.htm>)  
 RTI (<http://ipindia.nic.in/right-to-information.htm>) Feedback (<https://ipindiaonline.gov.in/feedback>) Sitemap (<http://ipindia.nic.in/itemap.htm>)  
 Contact Us (<http://ipindia.nic.in/contact-us.htm>) Help Line (<http://ipindia.nic.in/helpline-page.htm>)

[Skip to Main Content](#)



(<http://ipindia.nic.in/index.htm>)



(<http://ipindia.nic>)

## Patent Search

Invention Title	PREDICTING THE REMOVAL OF MALACHITE GREEN BY BISMUTH FERRITE-BASED PHOTOCATALYSTS USING DEEP LEARNING METHODS
Publication Number	01/2024
Publication Date	05/01/2024
Publication Type	INA
Application Number	202341083928
Application Filing Date	08/12/2023
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06N0003080000, B01J0035000000, G06K0009620000, A61K0008190000, C22C0038000000

### Inventor

Name	Address	Country
Anusha P	Assistant Professor, Electronics and Communication Engineering, R.M.K. Engineering College, Kavaraipettai, Thiruvallur District- 601206	India
Dr Radhesh A Bobdey	APJ Abdul Kalam University, Indore, MP- 452016	India
Dr.Manasi Vyankatesh Ghamande	B-401, Poonam Garden, Upper Indira Nagar,Bibwewadi	India
Dr K Basanthkumar	Assistant professor, Dept of Physics, Vardhaman College of Engineering, Shamshabad, 501218	India
Divyakumar P	Assistant Professor / Mechanical, SNS College of Technology, Coimbatore, 641035.	India
Uday Nandlal Trivedi	Government Polytechnic Ambawadi , Ahmedabad 380015	India
T Gayathri	Assistant Professor, Department of ISE, MVJ College of Engineering	India
N M Deepika	Assistant Professor Department of Information technology, Institute of Aeronautical Engineering, Dundigal, Hyderabad Telangana,pin 500043	India
Saad Hikmat Haji	Assistant Lecturer , Department of Computer Science, Cihan University - Duhok, Duhok, Kurdistan Region ,Iraq	Iraq
Dr.T.Raja	Assistant Professor, Department of Prosthodontics, Saveetha Dental College and Hospitals, SIMATS, Chennai-77, India.	India
Dr. Dharmbir Singh	Department of Physics, DPG Degree College, Gurgaon, Haryana, India-122001	India
Yallapu Srinivas	Assistant professor, ECE department, Vishnu Institute of Technology, Bhimavaram, W.G.Dist, 534 202	India

### Applicant

Name	Address	Country
Anusha P	Assistant Professor, Electronics and Communication Engineering, R.M.K. Engineering College, Kavaraipettai, Thiruvallur District- 601206	India
Dr Radhesh A Bobdey	APJ Abdul Kalam University, Indore, MP- 452016	India
Dr.Manasi Vyankatesh Ghamande	B-401, Poonam Garden, Upper Indira Nagar,Bibwewadi	India
Dr K Basanthkumar	Assistant professor, Dept of Physics, Vardhaman College of Engineering, Shamshabad, 501218	India
Divyakumar P	Assistant Professor / Mechanical, SNS College of Technology, Coimbatore, 641035.	India
Uday Nandlal Trivedi	Government Polytechnic Ambawadi , Ahmedabad 380015	India
T Gayathri	Assistant Professor, Department of ISE, MVJ College of Engineering	India
N M Deepika	Assistant Professor Department of Information technology, Institute of Aeronautical Engineering, Dundigal, Hyderabad Telangana,pin 500043	India
Saad Hikmat Haji	Assistant Lecturer , Department of Computer Science, Cihan University - Duhok, Duhok, Kurdistan Region ,Iraq	Iraq
Dr.T.Raja	Assistant Professor, Department of Prosthodontics, Saveetha Dental College and Hospitals, SIMATS, Chennai-77, India.	India
Dr. Dharmbir Singh	Department of Physics, DPG Degree College, Gurgaon, Haryana, India-122001	India
Yallapu Srinivas	Assistant professor, ECE department, Vishnu Institute of Technology, Bhimavaram, W.G.Dist, 534 202	India

**Abstract:**

Predicting the Removal of Malachite Green by Bismuth Ferrite-based Photocatalysts using Deep Learning methods is the proposed invention. The proposed inventor studying the functions of Bismuth Ferrite-based Photocatalysts. The invention focuses on analyzing the parameters of removal of malachite green using algorithms of Learning.

**Complete Specification**

Description:[0001] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0002] Deep learning is a method in artificial intelligence (AI) that teaches computers to process data in a way that is inspired by the human brain. Deep learning can recognize complex patterns in pictures, text, sounds, and other data to produce accurate insights and predictions. Deep learning models can recognize patterns such as: Pictures, Text, Sounds, Pixel data.

[0003] A number of different types of malachite green removal systems that are known in the prior art. For example, the following patents are provided for their supportive teachings and are all incorporated by reference.

[0004] Machine learning approaches to predict the photocatalytic performance of bismuth ferrite-based materials in the removal of malachite green:- This study focuses on the potential capability of numerous machine learning models, namely Gradient Boosting, Hist Gradient Boosting, Extra Trees, XG Boost, Decision Tree, Bagging, gradient boosting machine (LGBM), Gaussian Process, artificial neural network (ANN), and light long short-term memory (Light LSTM). These models were investigated to predict the photocatalytic degradation of malachite green from wastewater using various NM-BiFeO<sub>3</sub> composites. A comprehensive databank of 1200 data points was generated under various experimental conditions. The ten input variables selected were the catalyst type, reaction time, light intensity, initial concentration, catalyst loading, solution pH, humid acid concentration, anions, surface area, and pore volume of various photocatalysts. The MG dye degradation efficiency was selected as the output variable. An evaluation of the performance metrics suggested that the CatBoost model, with the highest test coefficient of determination (0.99) and lowest  $n$ -absolute error (0.64) and root-mean-square error (1.34), outperformed all other models. The CatBoost model showed that the photocatalytic reaction conditions were

[View Application Status](#)



Terms & conditions (<http://ipindia.gov.in/terms-conditions.htm>) Privacy Policy (<http://ipindia.gov.in/privacy-policy.htm>)

Copyright (<http://ipindia.gov.in/copyright.htm>) Hyperlinking Policy (<http://ipindia.gov.in/hyperlinking-policy.htm>)

Accessibility (<http://ipindia.gov.in/accessibility.htm>) Archive (<http://ipindia.gov.in/archive.htm>) Contact Us (<http://ipindia.gov.in/contact-us.htm>)

Help (<http://ipindia.gov.in/help.htm>)

Content Owned, updated and maintained by Intellectual Property India, All Rights Reserved.

Page last updated on: 26/06/2019