UNIVERSITÀ DEGLI STUDI DI MILANO

TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO **ID CODE __ 6717___**

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di __ Chimica dell'Università degli Studi di Milano _____**

Scientist- in – charge: **_____ Prof. Grigioni Ivan _____**

[Name and surname]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	KOTKONDAWAR
Name	ABHAY

PRESENT OCCUPATION

Appointment	Structure
Assistant Professor– Analytical Chemistry at Institute of Chemical Technology – Indian Oil Odisha Campus, Bhubaneswar, India.	It is contractual position, serving from May 2021. **Key responsibility:** • Teaching of Analytical and Industrial Chemistry to M.Sc. Chemistry • Teaching of Inorganic, and Physical Chemistry to Intergraded M. Tech along Pharmaceutical Analytics to MTech students • Serving as Central Instrumentation In-charge of Sophisticated Analytical Facility of ICT-IOCB

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree			
Specialization			
PhD	Chemistry Title of Thesis: "Development of materials for energy generation with concomitant environmental remediation"	Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, India	2018
Master	Analytical Chemistry	Rashtrasant Tukadoji	2011

		Maharaj Nagpur University, Nagpur, India	
Degree of medical specialization			
Degree of European specialization			
Other			
NPTEL Online Certification	Advanced NMR techniques in solution and solid state	Certification course conducted by Indian Institute of Science (IISc), Bangalore	2022
NPTEL Online Certification	Environmental Quality Monitoring & Analysis	Certification course conducted by Indian Institute of Technology (IIT), Madras	2022

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City

FOREIGN LANGUAGES

Languages	level of knowledge
English	Fluent

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2012	Qualified CSIR-NET-JRF examination and earned the fellowship for PhD program.
2014	Selected for the 15th Orientation programme in catalysis research at IIT-Madras, India
Nov. 2018-Nov. 2020	Engaged as Postdoctoral Research Associate under joint industry sponsored project, "Broad Band Absorption Cell (BBC) with enhanced efficiency of PV for hot water and electricity", between NOCIL, Private limited and CSIR – National Environmental Engineering Research Institute, India
Nov. 2020-May 2021	Engaged as Project Scientist – I in Minor Laboratory Project (MLP), "Artificial Leaf- membrane electrolyser coupled with modified PV generator" at Environmental Materials Division, CSIR – National Environmental Engineering Research Institute, India
April 2023-June 2024	Secured the funding from BIRAC (Biotechnology Industry Research Assistance Council) as a Mentor under E-Yuva scheme for the project, "Lignin based water bottles"

TRAINING OR RESEARCH ACTIVITY

Description of research activity

PhD:

Title of Thesis: Development of materials for energy generation with concomitant environmental remediation

Place of Research Work: Environmental Materials Division, CSIR – NEERI

- Studied deeply into intricacies of Heterogenous Catalysis to design efficient electro/photocatalysis for energy applications like the production of hydrogen or fine chemicals.
- Developed a unique method for the preparation of self-oriented carbon nanoparticle by low-cost flame pyrolysis technique.
- Practiced different wet chemical bottom-up synthesis techniques for the development of catalytic materials like Cadium Chalgonides, morphological controlled metal oxides and functional polymers (polyaniline)
- Performed electrochemical synthesis of Zinc and Aluminium nano-particles for thermo-photocatalytic hydrogen production
- Detailed experience of photo-catalytic hydrogen evaluations at different quartz reactor scales from 0.03 (lab) to 35 liters (pilot).
- Performed photocatalytic evaluations under different illumination sources from laboratory Solar AM 1.5 or medium/high-pressure mercury lamp to an outdoor parabolic solar concentrator.
- Competency in evaluations of the different photocatalytic reaction intermediate or end products on GC (FID or TCD) through online and offline mode of evaluations.

Postdoctoral Research Associate:

Project: Broad Band Absorption Cell (BBC) with enhanced efficiency of PV for hot water and electricity

- Contributed to and actively participated in research conception for designing of “Broadband absorption cell” to address thermal and optical management of photovoltaic modules.
- Conduct and scaled up the synthesis of luminescent aromatic organic molecules (luminophore) for UV to visible light conversion.
- Characterized different synthesized organic luminophores with a steady-state and time-resolved fluorescence spectrophotometer.
- Designed closed-loop water circulation systems for thermal management of photovoltaic modules.
- Collaborated with industry partners for commercialization of developed prototype.

Project Scientist – I

Project: Artificial Leaf- membrane electrolyser coupled with modified PV generator

- Conduct the synthesis of Optical down-converting materials for effective UV to visible light conversion
- Performed the optimization of water electrolyzer using Hetero-polyacids as Redox Mediators

Assistant Professor (contractual):

Project: Lignin based water bottle

- Develop the unique cost-effective calcium based Deep eutectic solvent for Lignocellulose pretreatment
- Studied the application of pretreated lignocellulose as filler material with convectional polymer like LDPE (low density polyethylene) and PLA (poly-lactic acid).
- Synthesized lignin nanoparticles and studies its compatibility with Chitosan for improved in the mechanical and antimicrobial properties

PROJECT ACTIVITY

Year	Project
2023-2024	Lignin based water bottle

PATENTS

Patent
1. Photo catalyzed Still, dryer and distillation, patent no. 356060; patentee- Council of Scientific and Industrial Research, India

CONGRESSES AND SEMINARS

Date	Title	Place

PUBLICATIONS

Books
[title, place, publishing house, year …]
[title, place, publishing house, year …]
[title, place, publishing house, year …]

Articles in reviews
Throwing light on platinized carbon nanostructured composites for hydrogen generation, P. Mangrulkar, Abhay V. Kotkondawar, S. Mukherjee, M.V. Joshi, N. Labhsetwar, D.D. Sarma and S.S. Rayalu, Energy & Environmental Science, 7(12), 2014, pp. 4087-4094
Plasmonic nanostructured Zn/ZnO composite enhances carbonic anhydrase driven photocatalytic hydrogen generation, P. Mangrulkar, A. Chilkalwar, Abhay V. Kotkondawar, N. Manwar, P. Antony, G. Hippargi, N. Labhsetwar, M.C. Trachtenberg, and S.S. Rayalu, Journal of CO2 Utilization, 2017, 17, pp. 207-212.
Photothermal hydrogen production from oxidative hydrolysis of electrochemically synthesized nano-sized zinc, Abhay V. Kotkondawar, P. Mangrulkar, S.Wanjari, P. Maddigapu, S. Rayalu, International Journal of Hydrogen Energy, 2019, 44, 13, pp. 6514-6524 .
Enhanced H2 production from Ethanolysis of Sodium borohydride and Ammonia borane over ternary Co0.97Pt0.03 /CeOx nanocomposite grown on catalytic support CGO, Abhay Kotkondawar, Sadhana Rayalu, RSC Advance, 2020,10, pp. 38184-38195.
Performance evaluation of PV-TEC coupling device for power production with improved hybrid nanocarbon based thermal material interface, Abhay Kotkondawar, Ankit Bhende and Sadhana Rayalu, Energy Reports, 7, 2021, pp.6868-6875.
Metal nitride-based nanostructures for electrochemical and photocatalytic hydrogen production. Gujral,

H.S., Singh, G., Baskar, A.V., Guan, X., Geng, X., Kotkondawar, A.V., Rayalu, S., Kumar, P., Karakoti, A. and Vinu, A., Science and Technology of Advanced Materials, 2022.
Morphologically and hierarchically controlled Ag/Ag2MoO4 microspheres for photocatalytic hydrogen generation. A. A. Moinuddin, Abhay Kotkondawar, G. Hippargi, A. Anshul, S. Rayalu, Applied Surface Science, 2022, 153554
Efficient Cross-Dehydrogenative Coupling (CDC) Enabled by Cu-PMo12 towards the Synthesis of Pyrimidinyl Carbamates at Room Temperature, Sujeet Gaware, Rana Chatterjee, Abhay Vijay Kotkondawar*, Rambabu Dandela, Asian Journal of Organic Chemistry, 12(7), p.e202300189
A promising photo-thermal catalytic approach for hydrogen generation from sulphide bearing wastewater, Afsha Anjum, Abhay Vijay Kotkondawar, Sadhana Rayalu, International Journal of Hydrogen Energy, 51, pp.1151-1160
Plasmon-Induced and Multichannel Electron Transfer-Improved Photocatalytic Hydrogen Production by CdS–Au–Pt Heterostructure. Kotkondawar, A.V., Moinuddin, A.A. and Rayalu, S.S., 2023. ACS Applied Energy Materials, 6(14), pp.7692-7701
Silver molybdate (Ag-PMo12) nanocomposite: An efficient catalyst for the onepot synthesis of 3,3-diindolyl derivatives in aqueous medium, Sujeet Gaware, Rana Chatterjee, Abhay Vijay Kotkondawar*, Rambabu Dandela, ChemistrySelect, 8(44), pp 202303462
Design and performance evaluation of Front glass-covered photovoltaics-thermal hybrid system for enhanced electrical output and hot water production. Abhay Vijay Kotkondawar, A., K. Gabhane, and S. Rayalu, 2024. Measurement: Energy, p.100006

Congress proceedings
[title, structure, place, year]
[title, structure, place, year]
[title, structure, place, year]

OTHER INFORMATION

Biosensing and Imaging using Graphitic Carbon Nitride Materials, book chapter, Wiley Scrivener (under review)

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: __Bhubaneswar, India____, __03.07.2024_