

دونابوينا سري ماها فيشنو

أستاذ مشارك

Biological Sciences and Chemistry (DBSC) - Chemistry Section, & Research Center for Energy, Materials, Metallurgy and Semiconductor (RCEM2S)

كلية العلوم والآداب

جامعة نزوى، سلطنة عمان

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يعمل في الجامعة: منذ 2014

الحالة الاجتماعية: Married..

حصل على الدكتوراه في الكيمياء من معهد جامعة هومي بهابا الوطنية ، مومباي ، الهند في عام 2014 ، ماجستير في الكيمياء من جامعة بونديشيري في الهند في عام 2008 ، وبكالوريوس في الكيمياء من جامعة بونديشيري في الهند في عام 2006. اهتماماته البحثية هي: كيمياء المواد ، كيمياء الملح المنصهر ، الكيمياء الكهربائية ، التآكل ، التعدين الكهربائي ، مواد الغرس الطبي الحيوي القائمة على Ti ، مواد تخزين الطاقة والمواد النانوية

المؤهلات الأكاديمية

Ph.D. (Chemistry), Homi Bhaba National Institute, 2014

M.Sc. (Chemistry), Pondicherry University, 2008

B.Sc. (Chemistry), Pondicherry University, 2006

أنشطة التدريس

Materials Chemistry

Physical Chemistry for Engineers

Biophysical Chemistry

Analytical Chemistry for Pharmacy

Analytical Chemistry-II

Fundamentals of Chemistry

Environmental Chemistry

Materials for Sustainable Energy Applications

Advanced Analytical Chemistry

Advanced Materials Chemistry

General Chemistry-II

Polymer Chemistry

Special Topics in Electronics, automation and biosensors

Analytical Chemistry-I

General Chemistry-I

Pharmaceutical Analysis

Advanced Seminar in Chemistry

General Chemistry-I

Applied Methods of Chemical Analysis

Graduation Project

الأنشطة البحثية

الاهتمامات البحثية ـ

Materials chemistry, molten salt chemistry, Electrochemistry, Corrosion, Electrometallurgy, Ti based biomedical implant materials, Energy storage materials and Nanomaterials

العرض في المؤتمرات ـ

Synthesis of nano-sized high-entropy carbide powder by electrochemical deoxidation for possible application in supercapacitors، 11th Internation Workshop on Advanced Materials (IWAM-2019)، Ras Al Khaimah, UAE.، 24th – 26th February, 2019

Porous Ti alloys with non-cytotoxic Nb and Sn for body-implant applications، 11th International Workshop on Advanced Materials (IWAM-2019)، Ras Al Khaimah, UAE.، 24th - 26th February, 2019

Electrochemical reduction of sintered titania powders to titanium metal in calcium chloride melt، Minerals and Metals Production from Mine to Market، Trinity Hall, Cambridge, United Kingdom. ، 15th - 16th, December 2015

Electrochemical synthesis of Ti matrix based composite materials in molten salts، 6th International round table conference on titanium production in molten salts (TiRT – 2018)، (Reykjavik University, Reykjavik, Iceland.، 10-13th June (2018

Electrochemical Synthesis of Silicon Carbide in Molten Calcium Chloride، 2nd International Conference on Electrochemical Science and Technology (ICONEST – 2017)، Indian Institute of (Science Campus, Bengaluru, India.، 10-12th August (2017

Direct electrochemical synthesis of Ti-35Nb-7.9Sn alloy from mixed oxide discs in CaCl2 melt، Molten Salt Discussion Group - Summer Research Meeting-2017، School of Chemical and Environmental Engineering, University of Nottingham, organized by Royal Society of Chemistry,

(Nottingham, UK., 4th -6th July (2017

Molten salt electrochemical synthesis of porous titanium-niobium biomedical alloys, 26th EUCHEM conference on Molten Salts and Ionic Liquids, Vienna, Austria, 3rd -8th July, 2016

Electrochemical synthesis of ferrochromium by electro-reduction in molten salts, 26th EUCHEM conference on Molten Salts and Ionic Liquids, Vienna, Austria, 3rd - 8th July, 2016

Studies on the Electro-deoxidation of CeO2 in the FFC Cambridge process, Second International Conference on Advances in Nuclear Materials (ANM), Mumbai, India, February 9-11, 2011

Electrodeoxidation of niobium pentoxide in molten calcium chloride medium, 3rd International Symposium on Materials Chemistry (ISMC), Bhabha Atomic Research Centre, Trombay, Mumbai, December 7-11, 2010

Preliminary results on the role of calcium during electro-reduction of solid oxides in molten calcium chloride medium, DAE-BRNS Biennial Symposium on Emerging trends in separation Science and Technology (SESTEC), Mumbai, India, February 27 - March 01, 2012

Estimation of uranium in UO2 partially reduced by electro-deoxidation, Fourth International Symposium on Nuclear Analytical Chemistry (NAC-IV), Bhabha Atomic Research Centre, Mumbai, India, November 15-19, 2010

Studies on electro-deoxidation of metal oxides in molten calcium chloride medium, Chemistry Research Scholars Meet (CRSM), IGCAR, Kalpakkam, India, July 14-15, 2011

An innovative study of the electrochemical reduction of solid SiO2 in LiCl and CaCl2 melts, DAE-BRNS 4th Interdisciplinary Symposium on Materials Chemistry (ISMC), BARC, Trombay, Mumbai, India, December 11-15, 2012

Studies on the direct electrochemical reduction of Nb2O5 in MCl (M=Na and K), CaCl2-75 mol % KCl and CaCl2 melts, International Conference on Vistas in Chemistry (ICVC), IGCAR, Kalpakkam, India, October 11-13, 2011

Galvanostatic studies on the electro-deoxidation of solid titanium dioxide in molten calcium chloride, FRAY International symposium on Metals and Materials Processing in a clean environment, Cancun, Mexico, November-2011

المنشورات –

مقال:

1. 2021 Factors controlling the synthesis of porous Ti-based biomedical alloys by electrochemical deoxidation in molten salts, Metallurgical and Materials Transactions B (2021) (in press)

2. 2021 Corrosion performance of electrochemically prepared Ti-5Ta-2Nb alloy in concentrated nitric acid, Materials Today Communications 26 (2021) 1-11 (Article No. 101786)

3. 2020 Microwave-assisted synthesis of palladium nanoparticles using Frankincense resin and evaluation of their catalytic properties, Materials Letters 278 (2020) 1-4 (Article No. 128427)

4. 2020 Facile and scalable electrochemical synthesis of Ta-Nb alloy powders for capacitors, Journal of the Electrochemical Society 167 (2020) 1-9 (Article No. 022504)

5. 2020 Preparation of refractory high-entropy alloys by electro-deoxidation and the effect of heat treatment on microstructure and hardness, JOM 72 (2020) 3895-3905

6. 2020 Facile Electrochemical Synthesis of Nanoscale (TiNbTaZrHf)C High-entropy Carbide Powder, Angwandte Chemie International Edition, 59 (2020) 1-7

7. 2019 Molten salt based direct solid state electrochemical de-oxidation of metal oxides to metal: Our experience at IGCAR, SMC Bulletin 10 (2019) 70-87

8. Phase composition, microstructure, corrosion resistance and mechanical properties of 2019 molten salt electrochemically synthesised Ti-Nb-Sn biomedical alloys، Materials Transactions 60 (2019) 422-428

9. Electrochemical synthesis of porous Ti-Nb alloys for biomedical applications، Materials 2019 Science and Engineering C 96 (2019) 466-478

10. Molten Salt Electrochemical Synthesis, Heat Treatment and Microhardness of Ti-5Ta-2Nb 2019 Alloy، Materials Transactions 60 (2019) 391-399

11. Electrochemical Conversion of Oxide Spinels into High-Entropy Alloy، Journal of Alloys 2019 and Compounds 776 (2019) 133-141

12. Direct electrochemical preparation of silicon carbide in calcium chloride melt and its 2018 nitridation behavior، Journal of the Electrochemical Society 165 (2018) D731-D742

13. Direct electrochemical synthesis of high-entropy alloys from metal oxides، Applied 2017 Materials Today 9 (2017) 111-121

14. Measurement of counter electrode potential during cyclic voltammetry and 2017 demonstration on molten salt electrochemical cells، International Research Journal of Pure and Applied Chemistry 15 (2017) 1-13

15. Difference in the mechanism of electrochemical deoxidation of conducting and non- 2017 conducting solid oxide preforms: An experimental demonstration with TiO2 and SiO2 pellet electrodes in CaCl2 melt، Research Reviews: Journal of Materials Science 5 (2017) 1-12

16. Factors influencing the direct electrochemical reduction of Nb2O5 pellets to Nb metal in 2017 molten chloride salts، Acta Metallurgica Sinica (Engl. Lett.) 30 (2017) 218-227

17. Electrochemical conversion of solid Nb2O5 to Nb in sodium chloride melt as proof of 2016 oxygen ionisation mechanism of electrodeoxidation، Journal of Alloys and Compounds 677 (2016) 258-265

18. Electrochemical characterisation of CaCl2 deficient LiCl-KCl-CaCl2 eutectic melt and 2016 electro-deoxidation of solid UO2، Journal of Nuclear Materials, 470 (2016) 179-186

19. Corrosion of high density graphite anodes during direct electrochemical de-oxidation of 2015 solid oxides in molten CaCl2 medium، Carbon, 93 (2015) 782-792

20. Electrochemical reduction of TiO2 powders in molten calcium chloride، Electrochimica 2015 Acta, 159 (2015) 124-130

21. A novel technique for estimation of metallic uranium using proton exchange membrane 2014 (based hydrogen sensor، Transactions of Indian Institute of Metals, 67 (5) 691-699 (2014

22. Factors influencing the direct electrochemical reduction of UO2 pellets to uranium metal 2013 (in CaCl2-48mol% NaCl melt، Journal of Electrochemical Society, 160 (11) D583-D592 (2013

23. Mechanism of direct electrochemical reduction of solid UO2 to uranium metal in 2013 CaCl2-48mol%NaCl melt، Journal of the Electrochemical Society, 160 (9) (2013) D394-D402

24. A study of the reaction pathways during electrochemical reduction of dense Nb2O5 2013 pellets in molten CaCl2 medium، Electrochimica Acta, 100 (2013) 51-62

25. Determination of the extent of reduction of dense UO2 cathodes from direct 2012 electrochemical reduction studies in molten chloride medium، Journal of Nuclear Materials, 427 (2012) 200-208

الخبرة الإدارية

2025 – الآن: 18. Member of DBSC Promotion Committee

2023 – الآن: Member, Interview Panel for shortlisting the CVs/job interview applications and interviewing and selecting new faculty members at RCEM2S

2023 – الآن: Chair of DBSC E-learning Committee

2022 – الآن: 22. In-charge, Establishment of laboratory scale and pilot scale FFC-Cambridge process cells at the Metallurgy Development Laboratory at Research Center for Energy, Materials, Metallurgy, and Semiconductors (RCEM2S), University of Nizwa

2023 - 2022: Member of DBSC Graduate studies, Research and Graduation project committee

2023 - 2022: Member of DBSC Webpage Committee

2022 – الآن: Member of CAS E-learning Committee

2024 - 2022: Member of DBSC Students Skills Committee

2024 - 2022: Member of DBSC Professional Development Committee

2020 – الآن: 19. Member of University of Nizwa Steering Council of Chair of Materials Science and Metallurgy

2021 - 2020: Member of DBSC Curriculum Committee

2021 - 2020: Chair of DBSC Curriculum Committee

2024 - 2020: Member of DBSC Quality Management Committee

2021 - 2020: Chair of DBSC Risk Management Committee

2021 - 2020: B.Sc., Chemistry Program Coordinator

2019 – الآن: Moderator for Examination Question Papers for various courses

2024 - 2019: Member of DBSC Risk Management Committee

2019 – الآن: Academic advisor for diploma, undergraduate and graduate students (AY2019/20 onwards)

2018 – الآن: In-charge, Materials Chemistry and Metallurgy Research Laboratory

العضوية في الهيئات المهنية

2015–الآن: Member of Royal Society of Chemistry (MRSC), United Kingdom

2011–الآن: Member of Society for Materials Chemistry (MSMC), India

Dr. Dunaboyina Sri Maha Vishnu obtained his B.Sc. (Chemistry) and M.Sc. (Chemistry) degrees from Pondicherry University, India and Ph.D. (Chemistry) degree in 2014 from Homi Bhabha National Institute, Mumbai, India. His Ph.D. was in the area of non-aqueous electrochemistry and electroanalytical chemistry with particular emphasis on electrochemical synthesis of materials and their characterization using advanced techniques. Later, he worked at the Department of Materials Science and Metallurgy, University of Cambridge, UK during the period from 17/11/2014 to 07/09/2018. He has been working on various research projects such as developing porous Ti based biomedical alloys for

body implant applications and their corrosion chemistry, synthesis of carbon and carbide based nanomaterials for their energy storage applications in lithium ion batteries and supercapacitors, non-aqueous electrochemistry and electrometallurgy for synthesis of novel materials, electrochemical synthesis of alloys and composite materials and evaluation of corrosion behaviour of structural alloys used in petroleum, petrochemical and chemical industries. Dr Vishnu has extensive hands-on experience in handling a remarkably wide range of laboratory equipment. This includes regular laboratory equipment, such as high-temperature furnaces, glove boxes, electrochemical retorts, ball mills, cutting machines, grinding and polishing machines, and sputter coaters; electrochemical instruments, such as potentiostats, impedance analysers, and data acquisition systems; equipment for advanced materials characterisation techniques, such as X-ray diffractometer (XRD), scanning electron microscope with energy-dispersive X-ray analyser (SEM-EDX), transmission electron microscope, simultaneous thermogravimetric analyser and differential scanning calorimeter (TGA/DSC), Raman spectrophotometer, and optical microscope; advanced analytical instruments, such as ICP-OES, and metallurgical oxygen analyser; as well as mechanical testing instruments, such as 4-point bend tester and hardness tester. So far he has published 18 international research articles with many more under review/preparation pending publication. He has presented his research work at 23 international conferences/seminars/workshops through oral and poster presentations. Currently he is an active reviewer for the well known international journals such as Electrochimica Acta, Journal of Electrochemical Society, Journal of Materials Science, Transactions of Nonferrous Metals Society of China, Transactions of the Institutions of Mining and Metallurgy Journals (TIIM C) and so on. He is a Member of Royal Society of Chemistry (MRSC, Membership No. 590988), UK since 2015 and Member of Society for Materials Chemistry (SMC, Membership No. 446), Mumbai, India since 2011.

المرجع: https://www.unizwa.edu.om/staff/cas/vishnu