



ACMME 2023

The 11th Asia Conference on Mechanical and Materials Engineering

ICCBS 2023

2023 10th International Conference on Chemical and Biological Sciences

Sapporo, Japan | June 8-11, 2023



Session 3-B

Topic: Applied Catalysis, Material Chemistry, and Material Physics

Session Chair: Assoc. Prof. Suriani Mat Jusoh, Universiti Malaysia Terengganu, Malaysia

Time: 10:30-11:45, June 10, 2023

Onsite Room: 5J

10:30-10:45	MS23-104E
	<p>Improvement the Hot Corrosion Behaviors of the Inconel 738LC Coating with Nano YSZ – CNTs</p> <p>Presenter: Kadhim F. Alsultani</p> <p>Kadhim F. Alsultani, Hassan Sh. Majidi and Sara Abdulameer Babylon University, Iraq</p>
10:45-11:00	MS23-6025-A
	<p>Super-hard Tough Coatings by Crystal Defect Engineering</p> <p>Presenter: Liangliang Liu</p> <p>Liangliang Liu and Paul K. Chu City University of Hong Kong, China</p>
11:00-11:15	MS23-7231
	<p>A new green solvent: Synthesis and Characterization of Natural-Deep-Eutectic-Solvent based Aqueous-Two-Phase System (NADES-ATPS) for Extraction of Anthocyanin</p> <p>Presenter: Tee Lee Hong</p> <p>Adityanindran Mahaindran, Xiaoqin Meng, Lee Hong Tee, Bee Lin Chua and Kai Siang Oh Taylor's University, Malaysia</p>
11:15-11:30	MS23-5068E-A
	<p>Electrodeposition of Ni–Co Alloy Films for Hydrogen Evolution</p> <p>Presenter: Ajay Kumar Kushwaha</p> <p>Ajay Kumar Kushwaha IIT Indore, India</p>
11:30-11:45	MS23-4068-A
	<p>Direct Observation of Dynamic Surface Reconstruction and Active Phases on Honeycombed Ni₃N-Co₃N/CC for Oxygen Evolution Reaction</p> <p>Presenter: Ping Qin</p> <p>Ping Qin Hong Kong Baptist University, China</p>

Super-hard Tough Coatings by Crystal Defect Engineering

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Abstract

Crystal defects can enhance the properties of materials without changing the composition but introduction of high-density defects in coatings is challenging. Herein, plasma immersion ion implantation and deposition (PIII&D) is employed to produce high-density crystal defects in CrN coatings to improve the mechanical properties. PIII&D is demonstrated to introduce high-density crystal defects into the CrN coatings, especially at a bias exceeding 10 kV. As a result, a large number of dislocations are created and distorted Moire fringes are observed. The hardness increases significantly from 24.2 GPa to 35.6 GPa, while the fracture toughness is not compromised.

Keywords: Crystal defects; ion energy; CrN coatings; mechanical properties; plasma immersion ion implantation and deposition (PIII&D)

Acceptance Notification and Invitation Letter

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We are pleased to inform you that, after review (please refer to the attached file), your abstract identified below has been accepted for Oral Presentation Only by **The 11th Asia Conference on Mechanical and Materials Engineering (ACMME 2023) to be held in Sapporo, Japan from 8-11 June 2023.**

Abstract ID: MS23-6025-A

Title: Super-hard Tough Coatings by Crystal Defect Engineering

You are sincerely invited to present your work and communicate with other distinguished participants at the conference.

For registration details, please refer to the second page of this document.

Yours sincerely,
ACMME 2023 Organizing Committees
March 16, 2023

