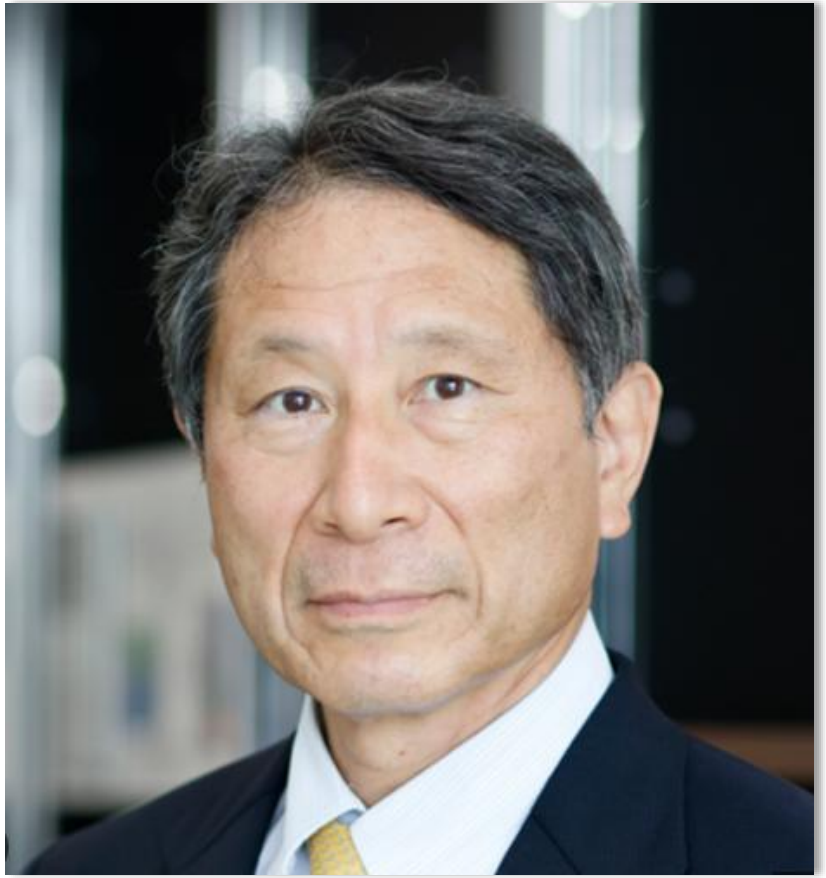
Lifetime Achievement Award

Professor Masaru Hori
Nagoya University



- **World-leading expert** in plasma technology
- **700+** peer-reviewed journal papers
- **80+** keynote lectures, **300+** invited talks

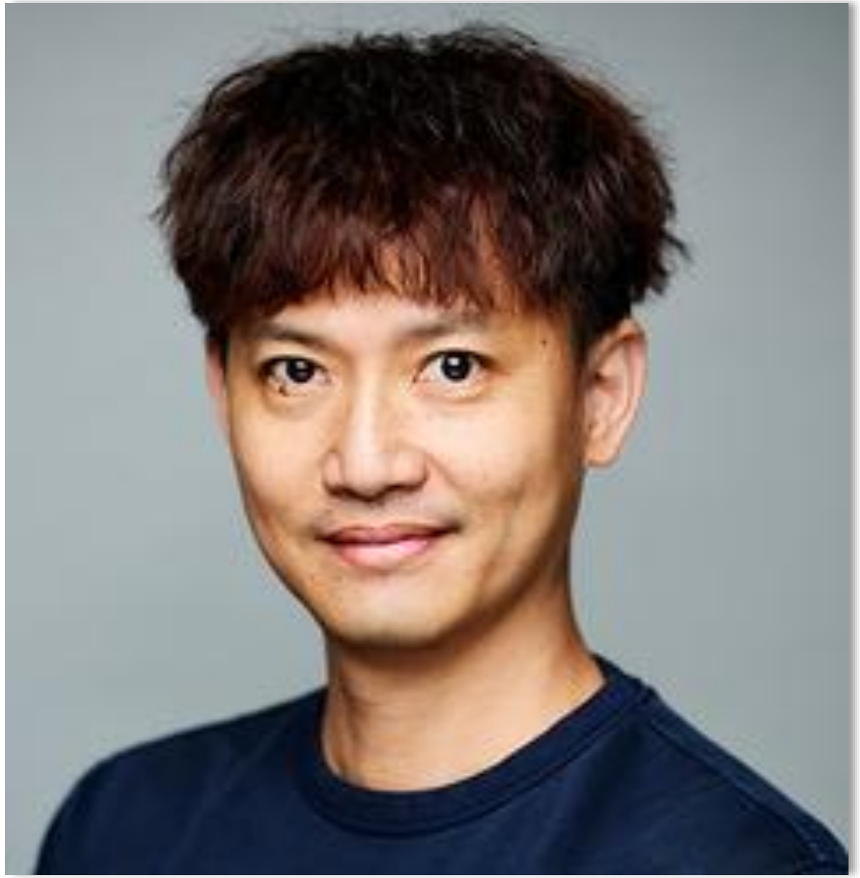
Recognized as a **global pioneer** in plasma and surface treatment fields:

- From his early work of Plasma etching, to plasma agriculture and plasma medicine
- Founder of **Nagoya Centre for Low-Temperature Plasma Sciences**
- Leads **50+** collaborating professors and international partners
  - Including **Nagoya University, Gifu University**, and more
- Provides **international research & student exchange** opportunities

Long-term collaboration with Taiwan universities
Frequent **TACT conference participant** and **keynote speaker**

Outstanding Young Researcher Award

Professor Yu-Ching Huang
Ming Chi University of Technology



- **Outstanding young scholar** combining originality, impact, and service
- Published in **top international journals**
- Advanced **solar cells** and **optoelectronic sensors** for practical use
- Key contributor to **Taiwan's green energy** and **sensor industries**
- Active in **global conferences** and **academic collaborations**
- Drives **innovation** aligned with **net-zero energy goals**

Outstanding Young Researcher Award

Professor Yu-Ze Chen
National Cheng Kung University

•Rising scholar recognised for excellence in research and innovation

•Recipient of **College of Engineering "Rising Star Research Award (2023)"**

•Finalist for **NCKU 90th Anniversary Outstanding Young Scholar** recognition

•Principal investigator of **NSTC Young Scholar Fellowship**, with research selected as a **Highlighted Project** and part of the **Einstein Program (2020)**

•Pioneered **coating technologies for zinc anode protection**, addressing

- **Dendrite suppression**
- **Side-reaction reduction**
- **Interface stabilization**

Outstanding Paper Award

Professor Yu-Sheng Su
National Yang Ming Chiao Tung University

Surface & Coatings Technology 480 (2024) 130617

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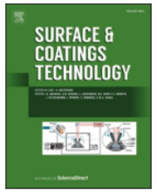
journal homepage: www.elsevier.com/locate/surfcoat



Engineering a lithium silicate-based artificial solid electrolyte interphase for enhanced rechargeable lithium metal batteries

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A R T I C L E I N F O

Keywords:
$Li_2Si_2O_5$
Li_2SiO_3
Powder coating
Solid-state synthesis
Hydrothermal synthesis
Metallic lithium anode

A B S T R A C T

The main motivation for replacing lithium-ion batteries with lithium metal batteries is to achieve a higher energy density by using the metallic lithium anode. One of the major challenges with rechargeable lithium metal batteries is the formation of lithium dendrites and dead lithium during repeated cycling. Another challenge is the formation of the unstable solid electrolyte interphase (SEI) on the surface of the lithium metal electrode, which can reduce battery efficiency and cycle life. In the present work, two different lithium silicates ($Li_2Si_2O_5$ and Li_2SiO_3) are successfully synthesized and implemented as an artificial SEI layer via a simple dry coating method. The lithium silicate coating acts as a protective barrier that prevents direct contact between the lithium metal and the electrolyte, which can cause undesirable side reactions and reduce the efficiency and lifetime of the battery. The lithium silicate artificial SEI layer improves the stability of lithium metal batteries by reducing unwanted surface reactions, optimizing ion transport kinetics, and protecting the lithium metal anode from mechanical deformation and unstable SEI formation during extended cycling. This laminated lithium anode structure can be an effective design for the future development of rechargeable lithium metal batteries.

Outstanding Paper Award

2025 International Thin Films Conference
國際鍍膜科技研討會
2025.10/26 ‣ 10/29

Professor Fan-Yi Ouyang
National Tsing Hua University

Surface & Coatings Technology 434 (2022) 128191

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journal homepage: www.elsevier.com/locate/surfcoat

Nanotwinned medium entropy alloy CoCrFeNi thin films with ultra-high hardness: Modifying residual stress without scarifying hardness through tuning substrate bias

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A R T I C L E I N F O

Keywords:
Medium entropy alloy
Nanotwinned structure
Hardness
Residual stress

A B S T R A C T

High entropy alloy (HEA) and highly nanotwinned (NT) material with improved ductility and high strength demonstrate promising potential compared to nanocrystalline materials and traditional metallic alloys. In this study, CoCrFeNi-based medium entropy alloy (MEA) thin films with nanotwinned structure (NT) was fabricated by sputtering technology and their corresponding properties and microstructure were investigated. The NT-MEA thin films show simple face centered cubic (FCC) structure with nearly 100% (111) texture and twin thickness in 1.8–2.8 nm. The NT-MEA thin films exhibit both low electrical resistivity (100 ± 2 μΩ-cm) and high hardness (8.0–9.15 GPa) with low roughness (Rms < 1.3 nm). By controlling the substrate bias, the residual stress of the CoCrFeNi thin film can be manipulated from compressive (−0.89 GPa) to tensile (+0.6 GPa) without scarifying the hardness.

Outstanding Paper Award

Professor Yin-Tung Albert Sun
National Taipei University of Technology

Thin Solid Films 753 (2022) 139259

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Thin Solid Films

journal homepage: www.elsevier.com/locate/tsf

An investigation of electromagnetic interference shielding effectiveness with multilayer thin films material

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Graduate Institute of Manufacturing Technology, National Taipei University of Technology, Taipei, Taiwan

A R T I C L E I N F O

Keywords:
Electromagnetic interference shield
Shielding effectiveness
Multilayer film
Thin film
Multiple regression models
Deterministic simulation

A B S T R A C T

This study prepared a thin films composite material sputtered with multi-layer good conductors on the surface of lightweight condensation polymer, which can be applied to electromagnetic interference shielding materials in the range of 1–6 GHz. Sub-micrometer grade silver (Ag), nickel (Ni), titanium (Ti), and graphite films were sputtered on a nylon (PA12) substrate by physical vapor deposition. The shielding effectiveness of the multilayer thin films composite was measured in accordance with a standard procedure, and the shielding index of the multilayer thin films composite was calculated. Three different electromagnetic interference shielding structures were tested in this study and gave statistically similar results with electromagnetic interference shielding effectiveness varying from 58 dB to 35 dB. The prediction results of a composite mathematical simulator were developed, including the theoretical formula model and the comprehensive prediction results of the multiple regression model, which are conducive to the development and evaluation of related composite materials in the future.