**Oct 20, 2024**

**Revision for Brochure**

**Dr. Chyan’s Research**

**Research:**

**Professor Chyan's research group actively explores underlying fundamental science of selected critical interfaces relevant to advanced microelectronic fabrication and functional nanostructure design/development. Various highly sensitive metrology was developed to characterize metals, semiconductors, oxides, organics and their composites. Working closely with our industry sponsors, our team achieves improved understanding of fundamental interfacial properties leading to useful functional designs, such as integrated circuit metal interconnects, Cu diffusion barriers, corrosion inhibitors, Cu-selective passivation coating, advanced IC packaging, green chemical processing, chemical sensors, and novel electrocatalysts.**

**Highlights:**

**Interfacial Electrochemistry**

**Microscopic Corrosion and Prevention**

**Semiconductor Materials Chemistry**

**Electrocatalysts**

**Research Area:**

**Analytical**

**Material Chemistry**

**Industry Chemistry**

[**https://chemistry.unt.edu/people/oliver-mr-chyan.html**](https://chemistry.unt.edu/people/oliver-mr-chyan.html)

**Chemistry/People Update**

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**Research Area:**

**Analytical**

**Material Chemistry**

**Industry Chemistry**

**Research:**

**Interfacial Electrochemistry**

**Microscopic Corrosion and Prevention**

**Semiconductor Materials Chemistry**

**Electrocatalysts**

**Professor Chyan's research group actively explores underlying fundamental science of selected critical interfaces relevant to advanced microelectronic fabrication. IC packaging and functional nanostructure design/development. Various highly sensitive metrology was developed to characterize metals, semiconductors, oxides, organics and their composites. Working closely with our industry sponsors, our team actively applied improved understanding of fundamental interfacial properties to useful functional designs, such as integrated circuit metal interconnects, Cu diffusion barriers, corrosion inhibitors, Cu-selective passivation coating, advanced IC packaging, green chemical processing, chemical sensors, and novel electrocatalysts.**

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[**https://chemistry.unt.edu/chyan-research-group/index.html**](https://chemistry.unt.edu/chyan-research-group/index.html)



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**Interfacial Electrochemistry and Material Research Lab**

Professor Chyan's research program, operates in the **Interfacial Electrochemistry and Materials Research laboratory** (IEMR Lab), has an international reputation of successfully exploring critical underlying fundamental science to greatly facilitate microelectronic fabrication, functional nanostructure design and alternative energy development. With frequent interactions with major microelectronic companies like Intel, TI, NXP, TEL and LAM, the work of the IEMRL has worldwide reach and impact.

**Research Areas:**

**Interfacial Electrochemistry**

**Microscopic Corrosion and Prevention**

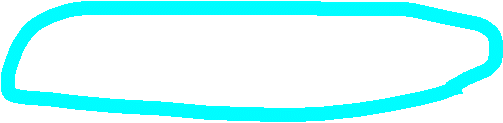
**Semiconductor Materials Chemistry**

**Electrocatalysts**

**Mission:**

**Professor Chyan's research group actively explores underlying fundamental science of selected critical interfaces relevant to advanced microelectronic fabrication and functional nanostructure design/development. Various highly sensitive metrology were developed to characterize metals, semiconductors, oxides, organics and their composites. The improved understanding of fundamental interfacial properties leads to useful functional designs, integrated circuit metal interconnects, Cu diffusion barriers, corrosion inhibitors, Cu-selective passivation coating, advanced IC packaging, green chemical processing, chemical sensors, and novel electrocatalysts.**

**Research Highlights + Professor Chyan’s CV**





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[**https://chemistry.unt.edu/research/analytical.html**](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fchemistry.unt.edu%2Fresearch%2Fanalytical.html&data=05%7C02%7COliverM.Chyan%40unt.edu%7C06d33a29b30e4b987efe08dceecf2ff2%7C70de199207c6480fa318a1afcba03983%7C0%7C0%7C638647820882543230%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=DwM808pA5BP0ODS3knHjyB4K3TgunIOu3L9HgWmGCcc%3D&reserved=0)

[**Analytical | University of North Texas (unt.edu)**](https://chemistry.unt.edu/research/analytical.html)

**Analytical Division Update**

**Dr. Oliver Chyan**

**Research Description  
  
Interfacial Electrochemistry; Microscopic Corrosion and Prevention, Semiconductor Materials Chemistry; Electrocatalysts; Industry Chemistry**