



Selective Chemical Bath Deposition of IrOx on Thin Film Structure

Tech ID: 28988 / UC Case 2017-015-0

SUMMARY

UCLA researchers in the Department of Bioengineering have developed a selective chemical bath deposition method to create IrOx thin films.

BACKGROUND

Iridium oxide (IrOx) thin films are useful devices that can be utilized for a variety of applications including photovoltaic cell manufacturing, development of biocompatible sensors, implants, and stimulators, as pH probes, as well as other useful functions. However, current methods and strategies to manufacture these devices require costly and technically challenging processes, such as physical and vapor deposition methods. The development of a novel simple process to generate IrOx thin films in the aqueous state would drive down cost and time needed to manufacture these devices.

INNOVATION

UCLA researchers led by Prof. Wentai Liu have developed a novel strategy to create IrOx thin films using a simple liquid bath deposition method to selectively deposit this metal oxide onto a platinum thin film substrate. This process is simple as the device is simply submerged into an aqueous solution of IrOx, allowing for targeted deposition without the necessity for masking, patterning or use of external voltage to drive deposition.

ADVANTAGES

- First practical technology that allows for liquid phase deposition if IrOx
- Cheaper and faster than current IrOx deposition methods
- Simpler method to generate IrOx thin films

STATE OF DEVELOPMENT

Researchers have fabricated IrOx thin films using this method and verified their electronic properties.

PATENT STATUS

| Country | Type | Number | Dated | Case |
|--------------------------|---------------|------------|------------|----------|
| United States Of America | Issued Patent | 11,389,644 | 07/19/2022 | 2017-015 |

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Iridium oxide, Iridium, thin films, thin film deposition, physical deposition, chemical bath, chemical bath deposition, IrOx, vapor deposition

CATEGORIZED AS

- **Materials & Chemicals**
 - Nanomaterials
 - Thin Films
- **Nanotechnology**
 - Electronics
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