



## 新型鋰離子陽極電池材料製備方法

提案人：呂宗昕 教授

單位：國立臺灣大學 化學工程學系/研究所

簡歷：日本東京工業大學無機材料系博士

研究室網頁：<http://homepage.ntu.edu.tw/~d01524001/index.ht>

### 市場及需求：

本技術係關於一種合成鋰離子電池陽極材料  $\text{TiNb}_2\text{O}_7$  之新型技術，該材料為一種適用於電動車長期穩定使用之材料。與傳統電池技術相比，鋰離子電池充電速度更快、使用更持久，並且具有更高的功率密度，能以輕巧的體積提供更長效的電池續航力。本技術製備之鋰離子電池陽極材料，可經過特殊製程反應設計後，有效提高電池電容量，且增加電池充放電能力，符合電動車及相關儲電系統的市場需求。

### 技術摘要(含成果)：

本技術係一種鋰離子電池陽極材料之特殊製備方法，可有效提高充放電容量，及循環壽命可以被改善。此種陽極材料合適應用於可再生能源科技及電動車產業。

### 優勢：

本技術製備高充放電特性之鋰離子電池陽極材料，透過本新型技術可製備出具有特殊高電容量之陽極材料，電池測試結果顯示出良好循環壽命。

### 競爭產品：

與本技術競爭產品為傳統鋰離子陽極材料製備技術。因既往製備所製備材料充放電容量不足，且充放電壽命不足，故其發展受到限制。

### 專利現況：

- (1)本技術將申請中華民國專利。
- (2)本技術團隊教授具有研究陶瓷材料二十年以上經驗。
- (3)本研究團隊具有十年以上研究螢光材料經驗。
- (4)本技術團隊教授為本校特聘教授，並獲得多次國科會傑出研究獎。

### 聯絡方式(請不用填)：

臺大產學合作總中心

Tel: 02-3366-9945, E-mail: [ordiac@ntu.edu.tw](mailto:ordiac@ntu.edu.tw)

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## New Preparation Technology for Anode Materials used in Lithium-ion Batteries

**PI :** Prof. Chung-Hsin Lu

Department of Chemical Engineering, National Taiwan U.

### **Experience:**

Ph.D., Tokyo Institute of Technology, Department of Inorganic Materials

<http://homepage.ntu.edu.tw/~d01524001/index.html>

### **Market Needs:**

The technology is related to synthesis anode materials  $TiNb_2O_7$  of lithium-ion battery which is suitable for long-term stable use of electric vehicles. Compared to traditional battery technology, lithium-ion batteries can be charge faster, long-term use, and higher power density. Moreover, they can provide longer-lasting battery life in a lightweight package. This technology synthesizes new anode materials of lithium-ion battery. The capacity and cycling time can be effectively enhanced. This kind of materials can be applied to electric vehicles application.

### **Our Technology:**

The present technology is related to a process to prepare anode materials of lithium-ion batteries. The capacity and cycle life of lithium ion batteries can be greatly improved. This type of anode materials is suitable application in renewable energy technology and electric vehicle industry.

### **Strength:**

This technology uses new methods to increase the capacity and cycle time of lithium-ion battery anode material. This kind of materials can be applied to the energy storing devices.

### **Competing Products:**

The previous conditional process is hard to prepare high capacity anode materials and long cycle life. Therefore, the application is limited.

### **Intellectual Properties:**

- (1) This technology will be filed as a patent in our country.
- (2) The professor in the research team has studied ceramic materials for more than twenty years.
- (3) The research team has studied phosphors materials for more than ten years.
- (4) The professor in the research team is a distinguished professor at NTU, and has obtained many rewards from NSC.

### **Contact (do not need to fill out):**

Center for Industry-Academia Collaboration, NTU

Tel: 02-3366-9945, E-mail: [ordiac@ntu.edu.tw](mailto:ordiac@ntu.edu.tw)