



鋰離子電池陽極材料製備技術

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，可經過特殊製程表面修飾技術後，有效減少與電解液反應狀態，有效提高鋰離子電池之安全性及使用範圍。

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表面修飾技術方法，可有效減少與電解液反應狀態，及改善循環壽命，此類材料可應用於大容量鋰離子電池及儲電系統中。

優勢：

本技術製備高安全性之鋰離子電池陽極材料，透過本新型技術可減少鋰離子電池副反應發生，降低該電池使用之風險。

競爭產品：

與本技術競爭產品為傳統鋰離子陽極材料之材料技術。因既往製備所製備材料易與電解液反應，故安全性不足，使其發展受到限制。

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

本資料僅供國立臺灣大學專利/技術申請使用，嚴禁使用全部或部分內容於其他用途。若有疑問請與我們聯繫，我們將盡力協助您。



Preparation method 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 $TiNb_2O_7$ 及 $Ti_2Nb_{10}O_{29}$ 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, provided longer-lasting battery life in a lightweight package. This technology synthesizes the anode materials of lithium-ion battery using a surface modification technology to suppress the reactions with the electrolytes. This technology can improve the safety of the anode materials.

Our Technology:

The present technology is related to a surface modification process to reduce the reactions between the anode materials and the electrolytes in the lithium-ion batteries. This type of lithium-ion batteries can be used in the large capacity batteries and the energy storage system.

Strength:

This technology uses new methods to prepare the lithium-ion batteries with high safety for reducing the side reactions. The risk of the usage of the batteries can be reduced.

Competing Products:

The previous anode materials are easy to react with the electrolytes; therefore, the safety problem needs to be solved, and the usage 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