

學術論文發表心得分享



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國立臺灣師範大學物理系

大綱



- 實驗室介紹
- 協助學生論文發表之標準流程 (SOP)
- 由出版社之觀點看論文發表
- 結論

實驗室介紹

先進材料與元件實驗室



8/1/2006

元件製作：

- ★ 元件結構設計
- ★ 光罩製圖
- ★ 積體電路製程技術：
薄膜沉積、微影、蝕刻、
離子佈植、金屬濺鍍、
氧化…等與製程整合

製程中之量測與分析：

薄膜厚度、微影ADI、
蝕刻AEI、TEM、SEM、
EDS、PL、AFM、XRD
XPS....

元件特性之量測與分析：

I-V、I-Time、photoelectric、
thermoelectric、
Quantum efficiency

MOSFET, Nano Devices, Solar Cell, Water Splitting,
Thin Film Li-Ion Batteries (半導體元件與光電元件)

Si process lab (Hsinchu)

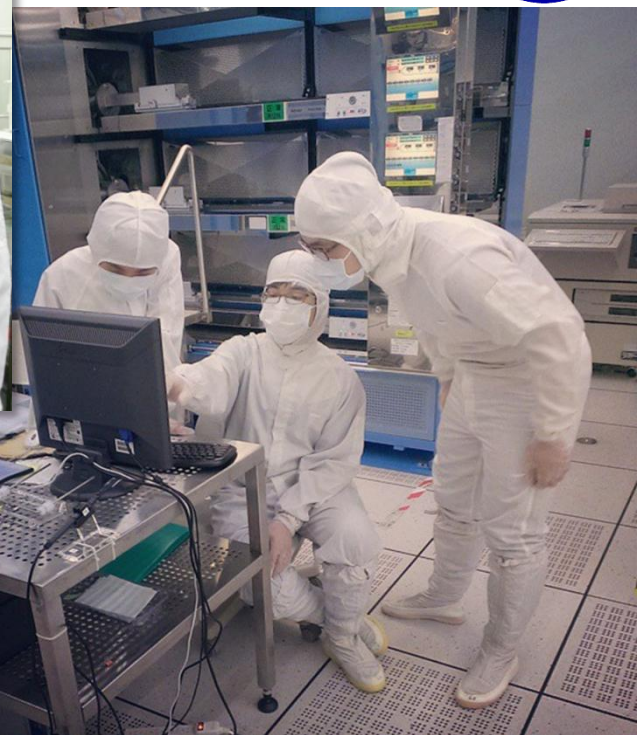


- 6" standard Si processing line for CMOS ICs
- Specialized for device processing and characterization (process capability 20 nm, device 50 nm)



Lab areas (m²)

Class 10-100	1300
Class 10,000	1000+1000
Office, etc	13,200





原子力顯微鏡SPA400



CVD Furance



sputter



RTA



充放電測試儀



基礎電性量測黑箱B1500A



手套箱

協助學生論文發表之 標準流程 (SOP)



預備發表論文單

姓名：吳俊彥

協助本篇文章之討論者姓名：陳柏棣 廖譽凱 胡淑芬

填本單日期：08 月 31 日 2016 年

預計投稿雜誌名稱：

預計投稿日期：

預計投稿論文英文題目：

Deposit LiI at interface between LiPON and lithium to increase the

Coulomb efficiency of full cell

(A) 列出最相關 references (依本實驗室論文撰寫規定)，最多 5 篇

1. André Schwöbel ; René Hausbrand; Jaouen ; Wolfram Jaegermann, Interface reactions between LiPON and lithium studied by in-situ X-ray photoemission. *Solid State Ionics* **2015**, 273, 51-54.
2. André Schwöbel; Wolfram Jaegermann; René Hausbrand, Interfacial energy level alignment and energy level diagrams for all-solid Li-ion cells: Impact of Li-ion transfer and double layer formation. *Solid State Ionics* **2006**, 288, 224-228.
3. Yu-Xiao Lin; Zhe Liu; Kevin Leung; Long-Qing Chen; Peng Lu; Yue Qi;, Connecting the irreversible capacity loss in Li-ion batteries with the electronic insulating properties of solid electrolyte interphase (SEI) components. *Journal of Power Sources* **2016**, 309, 221-230.
4. Juchuan Li; Nancy J. Dudney; Jagjit Nanda; Chengdu Liang;, Artificial Solid Electrolyte Interphase To Address the Electrochemical Degradation of Silicon Electrodes. *ACS Applied materials* **2014**, 6, 10083-10088.
5. Qinglin Zhang; Jie Pan; Peng Lu; Zhongyi Liu; Mark W. Verbrugge; Brian W. Sheldon; Yang-Tse Cheng; Yue Qi; Xingcheng Xiao, Synergetic Effects of Inorganic Components in Solid Electrolyte Interphase on High Cycle Efficiency of Lithium Ion Batteries. *NANO Letters* **2016**, 16, 2011-2016.

(B) 列出上述 5 篇論文之優與缺點

優點:

- 1.paper (1)於 XPS 圖下觀察到 LiPON/Li 有副反應的發生。
- 2.paper(2)與(3)利用理論計算對應 XPS 圖計算出各材料能級與介面的影響，提出利用人工 SEI 層提高穩定度的方法。
- 3.paper(4)利用 LiPON 為人工 SEI 層於 Si 陽極上，成功提高庫倫效率。
- 4.paper(5)利用 LiF/LiCO₃ 為人工 SEI 層於 Li 陽極上成功提高庫倫效率。

缺點

1. paper(1)(2)(3)皆為理論沒有實作。
2. paper(4)為液態電池。
3. paper(5)製程為 LiF/LiCO₃ 共同蒸鍍，較為麻煩。
4. paper(4)與 paper(5)皆無詳細電池構造圖。

(C) 列出擬撰寫論文與上述 5 篇論文比較之優點

1. 詳細的充放電過程圖與電池構造。
2. 製程簡單。
3. 解釋不同厚度人工 SEI 與電池庫倫效率之關係。

(D) 列出擬撰寫論文與上述 5 篇論文比較之結論優點(此亦為本論文之特點)

利用蒸鍍 LiI 於 LiPON/Li 界面，減少 LiPON 與 Li 之反應並減少漏電電流增加其庫倫效率。

(E) 擬撰寫論文之圖 (附上英文圖說明; figure caption) (至少 4 個可代表此文章結果之圖)

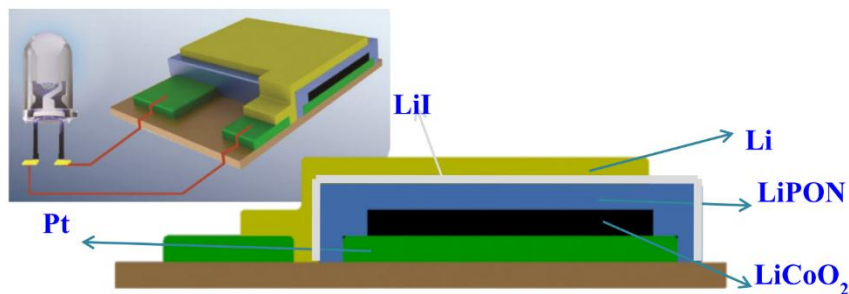


Fig.1 全固態可撓式鋰離子電池結構圖

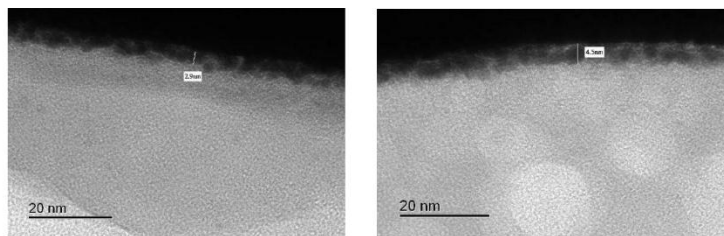


Fig. 2 LiI 厚度預計蒸鍍 2 nm 及 5 nm 之參數實測為 2.9 nm 及 4.5 nm

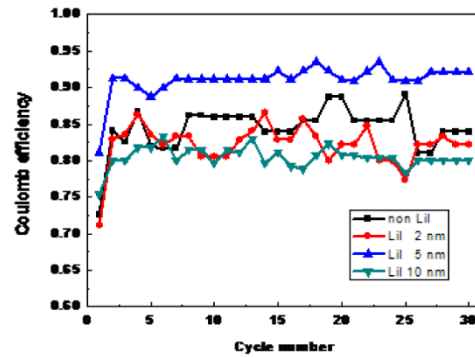


Fig. 3 不同 LiI 厚度之全電池庫倫效率比較圖片

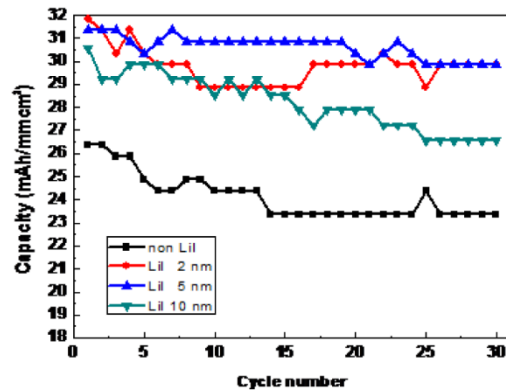


Fig. 4 不同 LiI 厚度之全電池放電電容比較圖

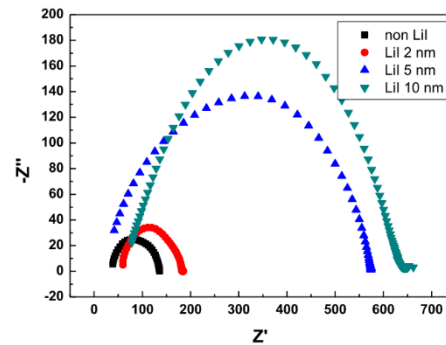


Fig. 5 從 non LiI, LiI 2 nm, 5 nm 和 10 nm 離子導電度依序為 1.1×10^{-6} S/cm, 6.8×10^{-7} S/cm, 2.1×10^{-7} S/cm, 2.2×10^{-7} S/cm。

(F)與老師討論日期：

(G)老師建議

- 1.
- 2.
- 3.
- 4.
- 5

(H)預計完成英文初稿日期：__月__日__年

預備發表論文單

預備論文發表單



論文初稿



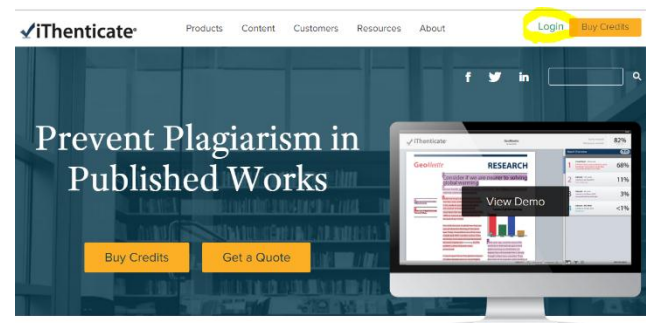
論文比對



論文英文修正



論文投稿



由出版社之觀點 看論文發表

Wiley材料科学期刊论文发表

梁多多
WILEY

中国颗粒学会第九届学术年会
2016年8月13日

1

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Hoboken



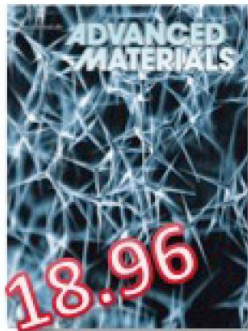
Weinheim



編輯部門

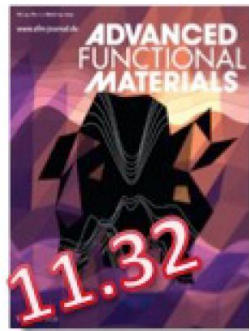


期刊产品



18.96

1989



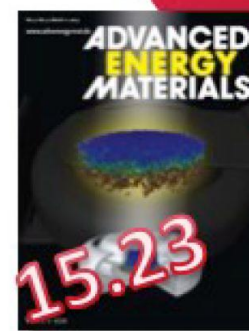
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2001



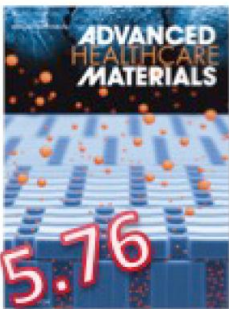
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2005



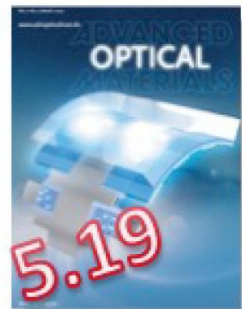
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2011



5.76

2012



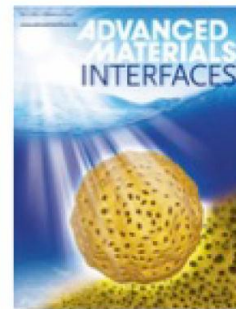
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2013

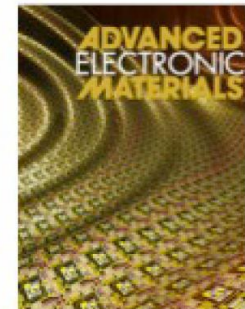


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2013



2014



2015

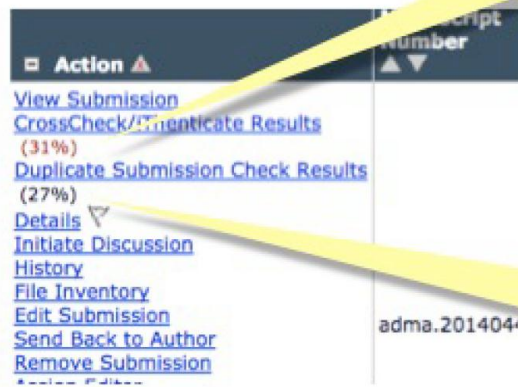
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投稿时自动完成

与网络上已存在
信息进行对比



与投稿系统内稿
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characteristics of an advanced nickel-based superalloy in simulating gas turbine engine conditions. The results showed that the advanced superalloy is highly vulnerable to both types of hot corrosion and oxidation. Between the two studied characteristics, hot corrosion is more detrimental to the alloy and its life was affected significantly. Even at low temperatures, the alloy was corroded severely. It is attributed to aggressive environmental conditions due to which reaction rates are faster. A degradation mechanism, which represents the deterioration of the advanced superalloy under hot corrosion both at low and higher temperatures and oxidation conditions, was proposed based on the results obtained with different techniques. Finally, the necessity of innovation of high performance protective coatings for its protection against hot corrosion and oxidation has been stressed, for improved efficiency in gas turbine engines.

Match Overview

Rank	Source	Words	Similarity
1	CrossCheck: 1040 words Gurappa, I., I. V. S. Yashwanth, and A. K. "The Selection of Materials for Marine Gas Turbine Engines", Efficiency	1040	28%
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较难避免的重复：简介，实验

论文评审

稿件的合适性

内容范围?
研究议题是否符合
期刊的定位?

格式?
Communication, Full
Paper, Review, ...?

是否更加符合姊妹期
刊 ...

长度超出要求—转到发
表全文的期刊?



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(Author Guideline)**

13

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论文评审

稿件的质量的评估

与已发表工
作的不同？

重要性—对相关
研究人员的影响？

是否具有足
够的新颖性？

对整体读者群的
意义？



↑
最重要的
标准

“期刊的版面是有限的，尽
量选择那些读者群可能会对
该成果感兴趣的期刊。”

14

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论文评审

已有研究议题 VS 全新研究议题



论文评审

编辑着重看的内容

»In conclusion, we have synthesised a novel class of multifunctional nanoparticles which are capable of significantly increasing the photoconversion efficiency of flexible solar cells ...«

结论

Keyword1 nanotechnology
Keyword2 gold nanorods
Keyword3 cancer therapy
Keyword4 medical imaging
Keyword5 liposomes
Keyword6 micelles

关键词

- [1] W. C. W. Chan, S. M. Nie, *Science* 1998,
- [2] L. Wang, C. Y. Yang, W. H. Tan, *Nano L*
- [3] L. Y. Wang, R. X. Yan, Z. Y. Huo, L. X. Wang, Q. Peng, Y. D. Li, *Angew. Chem.*
- [4] M. Bruchez, M. Moronne, P. Gin, S. We

参考文献

»Upconversion multifunctional n are synthesised in a core-shell co from lanthanide-doped NaYF₄ by

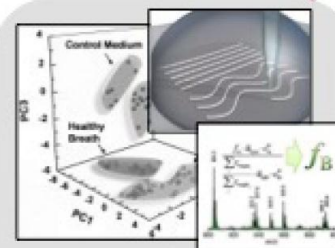
摘要



投稿信



“如果内容能引起我的兴趣，读者才会对它感兴趣。”



图片和表格

投稿提示

Coverletter

- 研究领域的重要性，及自己研究方向在这个领域意义、影响。
- 有何重要研究成果（**breakthrough**）？对比之前工作的进展。
- 为何选择该期刊投稿，对读者群体的吸引？

论文评审

Adv. Mater. 系列期刊的要求

表征 / 存在的证据

有足够的证据来证明所期望的化合物被制备出了吗?

新的性能和功能

比之前的材料/器件的性能更好或者拥有全新的性能?

应用的证明

有实际的结果证明可用性, **还是只是推测性的用途?**

合成/ 制备

新材料还是新系统?
是不是只是之前的方法的更改或者类似的材料, 即所谓的, 补充性的?



吸引广泛的读者群

给其他的人带来启发?
协助克服其它的难题吗?

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论文评审

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作者建议

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不一定非是有名的人士

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其他审稿人的建议

留以备用

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結論



Water Splitting Hot Paper

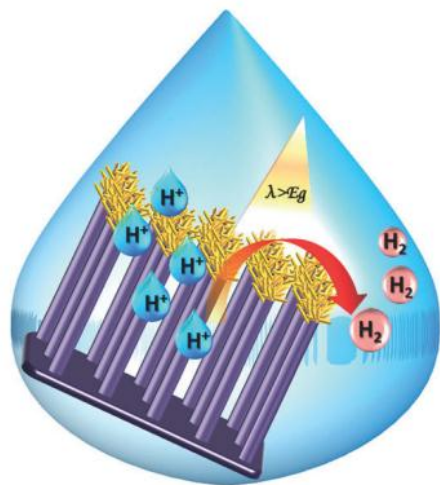
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German Edition: DOI: 10.1002/ange.201502573

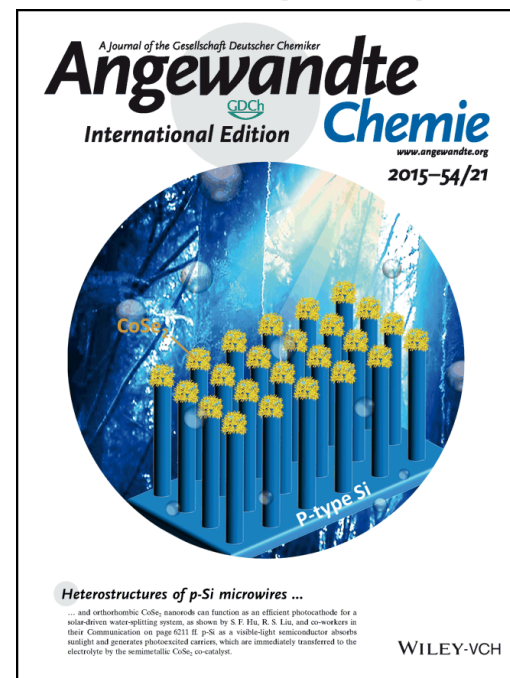


Heterostructure of Si and CoSe₂: A Promising Photocathode Based on a Non-noble Metal Catalyst for Photoelectrochemical Hydrogen Evolution**

Mrinmoyee Basu, Zhi-Wei Zhang, Chih-Jung Chen, Po-Tzu Chen, Kai-Chih Yang, Chong-Geng Ma, Chun Che Lin, Shu-Fen Hu,* and Ru-Shi Liu*



Heterostructure of semi-metallic CoSe₂ nanorods and p-Si microwires behave as an efficient photocathode for solar driven hydrogen evolution reaction. Photocurrents as high as 9 mAcm⁻² have been achieved at 0 V vs. reversible hydrogen electrode. The high photocurrents can be attributed to low charge transfer resistance between the Si and CoSe₂ interfaces and that between the CoSe₂ and electrolyte interfaces.



(Back side cover)



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Research Highlight
Manuscript
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