近五年研究成果表

姓名：陳思翰

一、近五年內研究成果統計表。(2019.08~2024.07)

統計類別	2019.08 ~ 2020.07		2020.08 ~ 2021.07		2021.08 ~ 2022.07		2022.08 ~ 2023.07		2023.08 ~ 2024.07		以上合計	
	篇數	IF 總和	篇數	IF 總和	IF 總和	IF 總和	篇數	IF 總和	篇數	IF 總和	總篇數	IF 總和
SCI 期刊論文（含共同作者）	**3**	**13.9**	**1**	**4.4**	**7**	**32.1**	**3**	**10.5**	**1**	**3.0**	**15**	**63.9**
SCI 期刊論文（限第一或通訊作者）	**3**	**13.9**	**1**	**4.4**	**3**	**12.2**	**2**	**7.8**	**0**	**0**	**9**	**38.3**

說明：

1. SCI (Science Citation Index) 之 Impact Factor 係以 **2022** 年版本為準。
2. IF 總和：係該年度論文所刊載期刊之 Impact Factor 總和。

二、近五年內獲獎情形。

1. 國立嘉義大學電子物理學系 110 學年度教師研究優良獎
2. 獲聘為國立嘉義大學電子物理學系特聘教授 (2022~2023 年)
3. 國立嘉義大學電子物理學系 108 學年度教師研究優良獎
4. 獲聘為國立嘉義大學電子物理系特聘教授 (2017~2018 年)

三、近五年內其他資料：擔任國際重要學術學會理監事、國際知名學術期刊編輯或評審委員等。

※ 2018.01~2023.12 擔任國際知名學術期刊評審委員共計 68 次

項次	期刊名稱	2022 IF	文件編號	日期
1	Progress in Quantum Electronics	11.7	Review paper	2021.03.15
2	ACS Materials Letters	11.4	tz-2020-002***	2020.07.20
3	ACS Applied Materials and Interfaces	9.5	am-2018-010***	2018.02.21
4			am-2018-065***	2018.05.13
5			am-2020-019***	2020.03.07
6			am-2020-061***	2020.09.26
7			am-2021-035***	2021.03.23
8			am-2021-078***	2021.05.18
9	Advanced Optical Materials	9.0	adom.201900***	2019.02.04

項次	期刊名稱	2022 IF	文件編號	日期
10	Journal of Materials Research and Technology	6.4	JMRT-D-23-07***	2023.09.21
11	Journal of Alloys and Compounds	6.2	JALCOM-D-23-10***	2023.08.17
12	ACS Applied Nano Materials	5.9	an-2023-014***	2023.04.19
13	Spectrochimica Acta Part A-Molecular and Biomolecular Spectroscopy	4.4	SAA-D-22-01***	2022.07.14
14	ACS Applied Electronic Materials	4.7	el-2020-000***	2020.03.01
15	Sustainability	3.9	1855***	2022.08.04
16	Sensors	3.9	2189***	2023.01.29
17	Optics Express	3.8	315***	2018.01.09
18			330***	2018.05.20
19			334***	2018.07.01
20			370***	2019.07.08
21			376***	2019.10.05
22			388***	2020.03.11
23			418***	2021.01.15
24			418***	2021.02.03
25	Optics Letters	3.6	363***	2019.04.20
26			449***	2022.01.04
27	Materials Science and Engineering B-Advanced Functional Solid-State Materials	3.6	MSB-D-18-0015***	2019.02.24
28			MSB-D-20-00***	2020.05.06
29			MSB-D-21-00***	2021.10.13
30			MSB-D-22-01***	2022.11.10
31	Nanotechnology	3.5	NANO-122***	2019.09.19
32			NANO-124***	2020.01.08
33			NANO-128***	2021.01.14
34			NANO-132***	2022.07.04
35			NANO-135***	2023.07.25
36	Materials	3.4	1665***	2022.03.31
37	Biomedical Optics Express	3.4	483***	2023.01.05
38	Micromachines	3.4	2035***	2022.11.07
39			2444***	2023.06.01
40	Plasmonics	3.0	PLAS-D-18-001**	2018.06.07
41			PLAS-D-18-004**	2018.12.06
42			PLAS-D-19-000**	2019.03.04

項次	期刊名稱	2022 IF	文件編號	日期
43			PLAS-D-19-002**	2019.08.27
44			PLAS-D-19-005**	2020.02.05
45			PLAS-D-20-001**	2020.07.11
46			PLAS-D-20-003**	2020.10.13
47			PLAS-D-21-002**	2021.07.28
48			PLAS-D-21-003**	2021.10.13
49			PLAS-D-22-000**	2022.03.22
50	Journal of Physical Chemistry A	2.9	jp-2018-024***	2018.04.27
51	Optical Materials Express	2.8	340***	2018.08.23
52			370***	2019.07.21
53			393***	2020.05.27
54	Current Pharmaceutical Biotechnology	2.8	BMS-CPB-2019-**	2019.05.06
55			BMS-CPB-2020-**	2020.09.26
56	Materials Research Express	2.3	MRX2-104***	2020.05.13
57			MRX-122***	2020.08.12
58	Thin Solid Films	2.1	TSF-D-19-01***	2019.12.16
59			TSF-D-19-01***	2020.01.06
60			TSF-D-19-01***	2020.01.19
61			TSF-D-21-01***	2022.02.08
62	SPIN	1.8	SPIN-D-18-00***	2018.12.22
63			SPIN-D-22-00***	2022.12.27
64	Physica Status Solidi B-Basic Solid State Physics	1.6	pssb.202100***	2021.07.14
65	OSA Continuum	1.6	374***	2019.08.25
66	Results in Optics	****	RIO-D-22-00***	2022.06.06
67	Optics Continuum	****	472***	2022.08.22
68	Colorants	****	2623***	2023.09.12

四、請簡述上述代表性研究成果之個人重要貢獻。

(1) 開發以p-型氧化鎳作為陽極視窗基板之新型高分子發光二極體

以射頻磁控濺鍍系統所研製之 p 型氧化鎳 (nickelous oxide, NiO_x) 具有高可見光穿透率、高電洞載子遷移率以及高功函數等特性，非常適合作為 PLED 的陽極視窗基板。本實驗室於2019年已經成功利用p-型氧化鎳取代 PEDOT:PSS (poly[3,4-ethylenedioxythiophene] polystyrene sulfonate) 作為電洞傳輸層，亦即將 NiO_x 濺鍍於氧化銦錫 (indium tin oxide, ITO) 透明導電膜上，形成 NiO_x / ITO 陽極基板，其製成之新型 PLED 的發光效率高達 1.3 倍增益及強度增益則達 1.7 倍左右，該成果已經於 2019 年 11 月發表於 *J. Mater. Chem. C* 高影響係數之國際 SCI 期刊。次年 (2020年) 進一步在 p 型氧化鎳上濺鍍一層超薄的 Pt 膜形成 Pt / NiO_x，用以取代傳統之 PEDOT:PSS / ITO 陽極導電視窗基板，製程新型之 PLED 元件。由於超薄的 Pt 膜具有提高並均化 NiO_x 表面導電性與功函數之功能，經由輝度計以及電致發光光譜影像分析結果發現，其發光效率約略提升 1.4 倍，且在特定驅動電壓下 (約 5.5 V)，發光波長並沒有產生藍移或紅移的現象，並且具有約 4 倍的強度增益效果。由於不需要電洞傳輸層以及氧化物緩衝層的輔助，因此陽極的厚度可由 160 nm (PEDOT:PSS / ITO) 降低至 62 nm (Pt / NiO_x)，這對於 PLED 輕薄化的發展趨勢提供一個可行的研究方向。相關成果已於 2021 年 7 月及 12 月分別發表於 *Synth. Met.* 以及 *Opt. Lett.* 等 SCI 期刊。

(2) 開發具奈米銀顆粒之新型高分子發光二極體並研究其侷域光增益現象

隨著電腦計算模擬設計以及奈米結構製程技術的精進，表面電漿超穎物質材料的開發已達成熟的階段，將其應用於光電元件效能的提升，肯定是未來的發展趨勢。近五年來，本實驗室致力於以物理或化學製程方式開發不同幾何形狀與尺寸之奈米銀顆粒，並以不同的形式應用於高分子發光二極體 (polymer light emitting diodes, PLEDs) 元件結構中，除了以軟體來計算與模擬奈米銀顆粒的表面電場分布外，亦藉由實際 PLED 元件電致發光的檢測結果來進一步驗證其表面電漿作用的侷域增強效果。近三年 (2019–2021年) 完成的四篇文章分別發表於 *Part. Part. Syst. Char.*, *Opt. Lett.*, *Langmuir, J. Ind. Eng. Chem.* 等 SCI 期刊，研究內容主要是利用化學還原法及光合成法製作奈米三角板、奈米十面體及奈米二十面體等不同形狀之銀顆粒，並將其尺寸分別控制在具有綠光或藍光吸收波段下，以直接摻雜於 PLED 元件的電洞傳輸層，或者經由相轉移的處理摻雜於 PLED 元件的發光層中。研究結果顯示，在最佳摻雜濃度時，兩者因表面電漿共振效應所引發之 PLED 發光效率的提升均可達數十倍的增益效果。這四篇論文深入的分析與討論了奈米銀的型態差異以及摻雜方式對於 PLED 發光效能所產生之影響，對於其在產業界之實際應用層面上具有高度的參考價值。

近五年內著作目錄

(A) SCI 期刊論文 (*為通訊作者)

※2019.08~2024.07 期間所發表之 SCI 期刊論文，共計 15 篇：

1. C.-T. Chou Chao, **S.-H. Chen**, H. J. Huang, Y.-F. Chou Chau*, 2023, Aug., "Near- and mid- infrared quintuple-band plasmonic metamaterial absorber," Plasmonics **18**, pp. 1581–1591. (2022 IF=3.0, Rank [MATERIALS SCIENCE, MULTIDISCIPLINARY]=195/342=57.02%)
2. **S.-H Chen**, W.-J. Hsieh, Y.-W. Hong, H. J. Huang, L.-M. Chiang, T. S. Kao, M.-H. Shih, H.-P. Chiang*, 2023, Jul., "Gold nanohole arrays with ring-shaped silver nanoparticles for highly efficient plasmon-enhanced fluorescence," Results Phys. **51**, 106740. (2022 IF=5.3, Rank [PHYSICS, MULTIDISCIPLINARY]=18/85=21.18%)
3. **S.-H. Chen***, Y-W Hong, Y.-F. Chou Chau, H. J. Huang, H.-P. Chiang, 2023, Jun., "Enhancement of luminous efficacy of polymer light-emitting diodes with silver-nanoparticles by oxygen-plasma treatment," Microsc. Res. Techniq. **86(6)**, pp. 725–730. (2022 IF=2.5, Rank [ANATOMY & MORPHOLOGY]=5/20=25.00%)
4. C.-T. Chou Chao, **S.-H. Chen**, H. J. Huang, M. R. R. Kooh, C. M. Lim, R. Thotagamuge, A. H. Mahadi, Y.-F. Chou Chau*, 2023, May, "Improving temperature sensing performance of photonic crystal fiber via external metal-coated trapezoidal-shaped surface," Crystals **13(5)**, 813. (2022 IF=2.7, Rank [CRYSTALLOGRAPHY]=9/26=34.62%)
5. **S.-H. Chen***, Y.-T. Wu, S.-H. Hsiao, C. Tseng, 2022, Jul., "Silver-doped nickel oxide as an efficient hole-transport layer in polymer light-emitting diodes," Microsc. Res. Techniq. **85(7)**, pp. 2390-2396. (2022 IF=2.5, Rank [ANATOMY & MORPHOLOGY]=5/20=25.00%)
6. Y.-R. Li, K.-L. Lee, K.-M. Chen, Y. C. Lu, P. C. Wu, **S.-H. Chen**, J.-H Lee*, P.-K. Wei*, 2022, Jun., "Direct detection of virus-like particles using color images of plasmonic nanostructures," Opt. Express **30(12)**, pp. 22233-22246. (2022 IF=3.8, Rank [OPTICS]=30/100=30.00%)
7. P.-C. Kao*, C.-J. Hsu, Z.-H. Chen, **S.-H. Chen**, 2022, Jun., "Highly transparent and conductive MoO_3/Ag/MoO_3 multilayer films via air annealing of the MoO_3 layer for ITO-free organic solar cells," J. Alloy. Compd. **906**, 164387. (2022 IF=6.2, Rank [METALLURGY & METALLURGICAL ENGINEERING]=8/78=10.26%)
8. **S.-H. Chen***, P.-J. Hsu, 2021, Dec., "Luminous efficiency improvement of polymer light-emitting diodes with platinum nanolayer at the PEDOT:PSS–ITO interface," Opt. Lett. **46(24)**, pp. 6039-6042. (2022 IF=3.6, Rank [OPTICS]=31/100=31.00%)
9. C.-L Huang, H. J. Huang, **S.-H. Chen***, Y.-S. Huang, P.-C. Kao, Y.-F. Chou Chau, H.-P.

Chiang, 2021, Nov., "Localized surface plasmon resonance enhanced by the light-scattering property of silver nanoparticles for improved luminescence of polymer light-emitting diodes," J. Ind. Eng. Chem. **103**, pp. 283-291. (2022 IF=6.1, Rank [ENGINEERING, CHEMICAL]=23/140=16.43%)

10. Y.-F. Chou Chau*, C.-T. Chou Chao, H. J. Huang, **S.-H. Chen**, T. S. Kao*, H.-P. Chiang*, 2021, Nov., "A multichannel color filter with the functions of optical sensor and switch," Sci. Rep. **11**, 22910. (2022 IF=4.6, Rank [MULTIDISCIPLINARY SCIENCES]=22/73=30.14%)
11. C.-T. Chou Chao, Y.-F. Chou Chau*, **S.-H. Chen**, H. J. Huang, C. M. Lim, M. R. R. Kooh, R. Thotagamuge, H.-P. Chiang*, 2021, Nov., "Ultrahigh sensitivity of a plasmonic pressure sensor with a compact size," Nanomaterials **11**, 3147. (2022 IF=5.3, Rank [CHEMISTRY, MULTIDISCIPLINARY]=58/178=32.58%)
12. **S.-H. Chen***, Y.-C. Tu, D.-R. Wang, J.-D. Hwang, P.-C. Kao, 2021, Jul., "Highly-luminous performance of polymer light-emitting devices utilizing platinum/nickelous oxide as the anode material," Synth. Met. **277**, 116796. (2022 IF=4.4, Rank [POLYMER SCIENCE]=23/86=26.74%)
13. **S.-H. Chen***, K.-Y. Shih, J.-D. Hwang, C.-F. Yu, 2019, Nov., "High-performance polymer LED using NiO_x as a hole-transport layer," J. Mater. Chem. C **7(43)**, pp. 13510-13517. (2022 IF=6.4, Rank [PHYSICS, APPLIED]=31/159=19.50%)
14. C.-L. Huang, **S.-H. Chen***, C.-Y. Wu, Y.-S. Sie, P.-C. Kao, 2019, Nov., "Influence of the silver nanocrystal shape on the luminous efficiency of blue-emitting polymer light-emitting diodes," Langmuir **35(47)**, pp. 15114-15120. (2022 IF=3.9, Rank [CHEMISTRY, MULTIDISCIPLINARY]=74/178=41.57%)
15. **S.-H. Chen***, Y.-H. Shih, Y.-R. Li, P.-K. Wei, C.-F. Yu, C.-Y. Huang, 2019, Sep., "Polymer LEDs with improved efficacy via periodic nanostructure-based aluminum," Opt. Lett. **44(17)**, pp. 4327-4330. (2022 IF=3.6, Rank [OPTICS]=31/100=31.00%)

(B) 研討會論文 (*為通訊作者)

※2019.08~2024.07 期間所發表之研討會論文，共計 7 篇：

1. H. J. Huang*, X.-Y. Shih, L.-Y. Huang, **S.-H. Chen**, H.-P. Chiang, J. C.-S. Wu, C.-L. Huang, 2023, Dec., "Reflection spectra of TiO_2 nanoparticles deposited with various shapes of silver nanoparticles," 2023 Optics & Photonics Taiwan International Conference.
2. H. J. Huang*, Y.-H. Wang, **S.-H. Chen**, H.-P. Chiang, Y.-F. Chou Chau, J. C.-S. Wu, 2023, Dec., "Effects of external light in the magnetic field-modulated photocatalytic reactions in a microfluidic chip reactor," 2023 Optics & Photonics Taiwan International Conference.
3. K.-M. Chen, B.-Y. Lu, C.-L. Huang, **S.-H. Chen***, 2023, Apr., "Influence of Ag-doped Graphene Oxide Thin Films on Microscopic Electrical Properties for ITO Surface," 2023 7th International Conference on Materials Engineering and Nano Sciences, Chiba University, Chiba, Japan (日本千葉縣千葉大學), MT23-205-A. (poster)
4. K.-M. Chen*, B.-Y. Lu, C.-L. Huang, **S.-H. Chen**, 2023, Jan., "摻銀氧化石墨烯薄膜對於 ITO 表面微觀電性之影響," 2023 Annual Meeting of the Physical Society of Taiwan, P1-SL-031. (poster)
5. P.-Y. Hsiao*, **S.-H. Chen**, 2022, Jan., "利用銀鏡射膜增益 PLED 的發光效能," 2022 Annual Meeting of the Physical Society of Taiwan, PP-SOE-074. (poster)
6. **S.-H. Chen***, Y.-C. Tu, J.-D. Hwang, P.-C. Kao, 2021, Jan., "Feasibility study of using NiO_x as the anode substrate for polymer light-emitting diodes," 2021 Annual Meeting of the Physical Society of Taiwan, P2-OE-037. (poster)
7. **S.-H. Chen**, C.-L. Huang, Y.-S. Huang*, 2020, Feb., "Influence of the scattering phenomenon of Ag nanoparticles on luminous efficiency for PLEDs," 2020 Annual Meeting of the Physical Society of Taiwan, P1-NST-002. (poster)

所有著作目錄

(A) SCI 期刊論文 (*為通訊作者) 共計 68 篇

※以第一作者或通訊作者所發表之SCI 期刊論文，共計 40 篇：

1. **S.-H Chen**, W.-J. Hsieh, Y.-W. Hong, H. J. Huang, L.-M. Chiang, T. S. Kao, M.-H. Shih, H.-P. Chiang*, 2023, Jul., "Gold nanohole arrays with ring-shaped silver nanoparticles for highly efficient plasmon-enhanced fluorescence," Results Phys. **51**, 106740.
2. **S.-H. Chen***, Y-W Hong, Y.-F. Chou Chau, H. J. Huang, H.-P. Chiang, 2023, Jun., "Enhancement of luminous efficacy of polymer light-emitting diodes with silver-nanoparticles by oxygen-plasma treatment," Microsc. Res. Techniq., **86(6)**, pp. 725–730.
3. **S.-H. Chen***, Y.-T. Wu, S.-H. Hsiao, C. Tseng, 2022, Jul., "Silver-doped nickel oxide as an efficient hole-transport layer in polymer light-emitting diodes," Microsc. Res. Techniq., **85(7)**, pp. 2390-2396.
4. **S.-H. Chen***, P.-J. Hsu, 2021, Dec., "Luminous efficiency improvement of polymer light-emitting diodes with platinum nanolayer at the PEDOT:PSS–ITO interface," Opt. Lett. **46(24)**, pp. 6039-6042.
5. C.-L Huang, H. J. Huang, **S.-H. Chen***, Y.-S. Huang, P.-C. Kao, Y.-F. Chou Chau, H.-P. Chiang, 2021, Nov., "Localized surface plasmon resonance enhanced by the light-scattering property of silver nanoparticles for improved luminescence of polymer light-emitting diodes," J. Ind. Eng. Chem. **103,** pp. 283-291.
6. **S.-H. Chen***, Y.-C. Tu, D.-R. Wang, J.-D. Hwang, P.-C. Kao, 2021, Apr., "Highly-luminous performance of polymer light-emitting devices utilizing platinum/nickelous oxide as the anode material," Synth. Met. **277**, 116796.
7. **S.-H. Chen***, K.-Y. Shih, J.-D. Hwang, C.-F. Yu, 2019, Nov., "High-performance polymer LED using NiO_x as a hole-transport layer," J. Mater. Chem. C **7(43)**, pp. 13510-13517.
8. C.-L. Huang, **S.-H. Chen***, C.-Y. Wu, Y.-S. Sie, P.-C. Kao, 2019, Nov., "Influence of the silver nanocrystal shape on the luminous efficiency of blue-emitting polymer light-emitting diodes," Langmuir **35(47)**, pp. 15114-15120.
9. **S.-H. Chen***, Y.-H. Shih, Y.-R. Li, P.-K. Wei, C.-F. Yu, C.-Y. Huang, 2019, Jul., "Polymer LEDs with improved efficacy via periodic nanostructure-based aluminum," Opt. Lett. **44(17)**, pp. 4327-4330.
10. **S.-H. Chen***, C.-L. Huang, B.-H. Cheng, H.-J. Ku, H.-I Hsiao, P.-C. Kao, 2019, Feb., "Enhanced device performances of blue-emitting PLEDs coupled with silver-nanoicosahedrons," Part. Part. Syst. Char. **36(2)**, 1800376.

11. S.-H. Chen*, C.-L. Huang, C.-F. Yu, G.-F. Wu, Y.-C. Kuan, B.-H. Cheng, Y.-R. Li, 2017, Sep., "Efficacy improvement in polymer LEDs via silver-nanoparticle doping in the emissive layer," Opt. Lett. **42(17)**, pp. 3411-3414. (Times Cited=15)
12. S.-H. Chen*, C.-W. Su, L.-H. Chang, T.-H. Tsai, 2017, Jul., "Differences in the nanoscale electrical properties of GaN films grown on sapphire and ZnO substrates by molecular beam epitaxy," Microsc. Res. Techniq. **80(7)**, pp. 731-736.
13. S.-H. Chen*, C.-F. Yu, C.-S. Chien, 2017, Jul., "Nanoscale electrical properties of ZnO nanorods grown by chemical bath deposition," Microsc. Res. Techniq. **80(7)**, pp. 671-679.
14. S.-H. Chen*, C.-F. Yu, C.-J. Wang, S.-H. Chen, Y.-D. Chen, T.-C. Chen, C.-F. Lin, 2016, Sep., "Light enhancement of plasmonic nano-structure for PLEDs at RGB wavelengths," Org. Electron. **38(11)**, pp. 337-343. (Times Cited=12)
15. S.-H. Chen*, Y.-H. Chang, C.-W. Su, J.-S. Tsay, 2016, Jul., "Magnetic domain imaging of nano-magnetic films using magnetic force microscopy with polar and longitudinally magnetized tips," Microsc. Res. Techniq. **79(10)**, pp. 917-922.
16. S.-H Chen*, C.-Y. Chen, C.-F. Yu, P.-C. Kao, C.-F. Lin, 2015, Aug., "Differences between the luminescence efficiencies of PLEDs based on Ag-nanoparticles/GZO/PEN and GZO/Ag-nanoparticles/PEN anodes," Plasmonics **10(4)**, pp. 925-930.
17. S.-H Chen*, C.-T. Yen, C.-F. Yu, P.-C. Kao, C.-F. Lin, 2015, Apr., "High PLED enhancement by surface plasmon coupling of Au nanoparticles," Plasmonics **10(2)**, pp. 257-261. (Times Cited=11)
18. S.-H. Chen*, Y.-R. Li, C.-F. Yu, C.-F. Lin, P.-C. Kao, 2013, Nov., "Enhanced luminescence efficiency of Ag nanoparticles dispersed on indium tin oxide for polymer light-emitting diodes," Opt. Express **21(22)**, pp. 26236-26243. (Times Cited=14)
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