Chen Hsuen-Li（陳學禮）

Professor, Department of Materials Science and Engineering, National Taiwan University

SCI Papers

1. Y. C. Lee, Y. C. Tseng, and **H. L. Chen***, "Single Type of Nanocavity Structure Enhances Light Outcouplings from Various Two-Dimensional Materials by over 100-Fold," *ACS Photonics* (accepted) DOI. 10.1021/acsphotonics.6b00601 (2017)

2. C. C. Yu, K. T. Lin, P. Y. Su, E. Y. Wang, Y. T. Yen, and **H. L. Chen***, "Short-Range Plasmonic Nanofocusing Within Submicron Regimes Facilitates In Situ Probing and Promoting of Interfacial Reactions," *Nanoscale*, (2016) 8, 3647–3659. (SCI)

3. Y. C. Lee, K. T. Lin, **H. L. Chen***, "Ultra-broadband and omnidirectional enhanced absorption of graphene in a simple nanocavity structure," *Carbon*, 108 (2016) 253-261. (SCI)

4. Y. C. Tseng, Y. C. Cheng, Y. C. Lee, D. L. Ma, B. Y. Yu, B. C. Lin, and **H. L. Chen***, "Using Visible Laser-Based Raman Spectroscopy to Identify the Surface Polarity of Silicon Carbide," *The Journal of Physical Chemistry C*, (2016), 120, 18228−18234. (SCI)

5. K. T. Lin, **H. L. Chen***, Y. S. Lai*, "Filter-free, junctionless structures for color sensing," *Nanoscale,* 8, 16936–16946 (2016) (SCI)

6. K. T. Lin, **H. L. Chen***, Y. S. Lai,* Y. M Chi, and T. W. Chu, "Plasmonics-Based Multifunctional Electrodes for Low-Power Consumption Compact Color-Image Sensors," *ACS Applied Materials & Interfaces*, 8, 6718−6726 (2016) (SCI)

7. T. Y. Lu, Y. C. Lee, Y. T. Yen, C. C. Yu, and **H. L. Chen***, "Astronomical liquid mirrors as highly ultrasensitive, broadband operational surface-enhanced Raman scattering-active substrates," *Journal of Colloid and Interface Science*, (2016) Volume 466, 15 March, Pages 80-90 (SCI)

8. Y. L. Liu, C. C. Yu, K. T. Lin, T. C. Yang, E. Y. Wang, **H. L. Chen***, L. C. Chen, and K. H. Chen, "Transparent, Broadband, Flexible, and Bifacial-Operable Photodetectors Containing a Large-Area Graphene-Gold Oxide Heterojunction," *ACS Nano* Vol. 9, No. 5, 5093–5103 (2015).

9. S. H. Tsao, Dehui Wan, Y. S. Lai, H. M. Chang, C. C. Yu, K. T. Lin, and **H. L. Chen**, "White Light–Induced Collective Heating of Gold Nanocomposite/B. mori Silk Thin Films with Ultrahigh Broadband Absorbance," *ACS Nano* accepted DOI: 10.1021/acsnano.5b04913 (2015)

10. Y. C. Lee, **H. L. Chen***, C. Y. Lu, H. S. Wu, Y. F. Chou and S. H. Chen, "Using nanoimprint lithography to improve the light extraction efficiency and color rendering of dichromatic white light-emitting diodes," *Nanoscale*, (2015) 7, 16312-16320 (SCI)

11. S. Y. Chou, C. C. Yu, Y. T Yen, K. T. Lin, **H. L. Chen***, and W. F. Su, "*Romantic Story or Raman Scattering?* Rose Petals as Eco-friendly, Low-Cost Substrates for Ultrasensitive Surface-

Enhanced Raman Scattering," *Analytical Chemistry*, 87, 6017−6024 (2015) (SCI)

12. C. C. Yu, S. Y. Chou, Y. C. Tseng, S. C. Tseng, Y. T. Yen and **H. L. Chen***, "Single-shot laser treatment provides quasi-three dimensional paper-based substrates for SERS with attomolar sensitivity," *Nanoscale*, 7, 1667–1677 (2015) (SCI) （當期期刊封面）

13. Y. C. Lee, E. Y. Wang, Y. L. Liu, and **H. L. Chen***, "Using Metal-less Structures To Enhance the Raman Signals of Graphene by 100-fold while Maintaining the Band-to-Band Ratio and Peak Positions Precisely," *Chemistry of Materials*, 27, 876−884 (2015) (SCI)

14. P. H. Ho, W. C. Lee, Y. T. Liou, Y. P. Chiu, Y. S. Shih, C. C. Chen, P. Y. Su, M. K. Li, **H. L. Chen**, C. T. Liang, C. W. Chen*, "Sunlight-activated graphene-heterostructure transparent cathodes: enabling high-performance n-graphene/p-Si Schottky junction photovoltaics," *Energy & Environmental Science,* 8, 2085--2092 (2015) (SCI)

15. C. C. Yu, Y. C. Tseng, P. Y. Su, K. T. Lin, C. C. Shao, S. Y. Chou, Y. T. Yen, **H. L. Chen***, "Incident Angle–Tuned, Broadband, Ultrahigh-Sensitivity Plasmonic Antennas Prepared from Nanoparticles on Imprinted Mirrors," *Nanoscale*, 7, 3985–3996 (2015) (SCI) (當期期刊內封面）（2015 Hot Papers in Nanoscale）

16. C. C. Yu, **H. L. Chen***, "Nanoimprint technology for patterning functional materials and its applications," *Microelectronic Engineering*, 132, 98-119 (2015) (SCI) (30 year Anniversary Special Issue, Invited Review article)

17. K. T. Lin, **H. L. Chen***, Y. S. Lai,* and C. C. Yu, "Silicon–based broadband antenna for high–responsivity and polarization–insensitive photodetection at telecommunication wavelengths," ***Nature Communications***, 5, 3288, DOI: 10.1038/ncomms4288 (2014) (SCI)

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19. Y. L. Liu, C. Y. Fang, C. C. Yu, T. C. Yang, and **H. L. Chen***, "Controllable localized surface plasmonic resonance phenomena in reduced gold oxide films," *Chemistry of Materials*, 26, 1799−1806 (2014) (SCI)

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22. Y. T. Yen, T. Y. Lu, Y. C. Lee, C. C. Yu, Y. C. Tsai, Y. C. Tseng, and **H. L. Chen***, "Highly

reflective liquid mirrors: Exploring the effects of localized surface plasmon resonance and the arrangement of nanoparticles on metal liquid-like films," *ACS Applied Materials & Interfaces*, 6, 4292−4300 (2014) (SCI)

23. Y. C. Chen, P. Y. Su, S. C. Tseng, Y. C. Lee, and **H. L. Chen***, "Preparing wafer-scale omnidirectional broadband light-harvesting nanostructures in a few seconds," *Journal of Materials Chemistry A*, 2, 4633–4641 (2014) (SCI)

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25. K. T. Lin, S. C. Tseng, **H. L. Chen***, Y. S. Lai,* S. H. Chen, Y. C. Tseng, T. W. Chu, M. Y. Lin and Yen-Pei Lu, "Ultrahigh-sensitivity CdS photoconductor with instant response and ultralow power consumption for detection in low-light environments," *Journal of Materials Chemistry C*, (2013) Vol. 1, No. 27, 4244–4251 (SCI) （當期期刊封面）

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27. S. C. Tseng, C. C. Yu, D. C. Lin, Y. C. Tseng, **H. L. Chen***, Y. C. Chen, S. Y. Chou, and L. A. Wang, "Laser-induced jets of nanoparticles: Exploiting air drag forces to select the particle size of nanoparticle arrays," *Nanoscale*, 5, 2421–2428 (2013) (SCI)

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148(5) (2013) (SCI)

33. S. C. Tseng, C. C. Yu, Dehui Wan, **H. L. Chen***, L. A. Wang, M. C. Wu, W. F. Su, H. C. Han, and L. C. Chen, "Eco-friendly plasmonic sensors: Using the photothermal effect to prepare metal nanoparticle–containing test papers for highly sensitive colorimetric detection," *Analytical Chemistry* (2012) 84 (11), 5140–5145 (SCI)

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39. C. W. Hsu, Y. C. Lee, **H. L. Chen***, Y. F. Chou, "Optimizing textured structures possessing both optical gradient and diffraction properties to increase the extraction efficiency of light-emitting diodes," *Photonics and Nanostructures - Fundamentals and Applications*, (2012) 10(4), 523–533 (SCI)

Non SCI/EI Papers

1. 林耕德, **陳學禮***, 賴宇紳, 曾紹欽,"準分子雷射退火技術開發低成本、低耗能及高光電響應之硫化鎘光電元件," 科儀新知，201 期 12－21 頁，12 月(2014)。

International Conference Papers

1. K. T. Lin, T. Y. Lin, Y. S. Lai, Y. M. Chi, T. W. Chu, and **H. L. Chen***, "Low Power Consumption of Plasmonics based Color–Image Sensors," AF1305, *20th International Vacuum Congress (IVC-20)*, Busan. Korea (2016).

2. Aileen Y. Sun, Sih-Wei Chang, **H. L. Chen**, DehuiWan, "Extraordinary Electric Field Enhancement Arising from Non-noble Metal Substrate-induced Interfacial Plasmonics with Silver Nanoparticles," *Micro and Nano Engineering (MNE),* Vienna, Austria (2016)

3. Y. C. Tseng, C. C. Yu, S. Y. Chou, S. C. Tseng, Y. T. Yen and **H. L. Chen***, "Attomolar sensitivity quasi-three-dimensional paper-based SERS substrates fabricated by single laser shot treatment, 8th *International Conference on Advanced Vibrational Spectroscopy* (ICAVS 8), Vienna, Austria (2015).

4. K. T. Lin, **H. L. Chen**, Y. L. Liu, Y. C. Tseng, and C. H. Lin, J. M. Liu, and Y. S. Lai, "Nanocrystallized CdS for detection of UV light with picowatt sensitivity through single shot KrF laser treatment," *The 22nd International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD)*, Kyoto, Japan. (2015, July)

5. K. T. Lin, **H. L. Chen***, Y. S. Lai, Y. L. Liu, Y. C. Tseng, and C. H. Lin, Developing picowatt–sensitive UV photoconductors for characterization of UV-sensitive materials. *International Union of Materials Research Societies-International Conference on Electronic Materials (IUMRS-ICEM) (2014)*.

6. K. T. Lin, **H. L. Chen***, Y. S. Lai, Y. L. Liu, and Y. C. Tseng, Using raman spectroscopy to analyze the shallow-region crystallization of single-shot laser treated CdS photoconductors. 24th *International Conference on Raman Spectroscopy (ICORS), Jena, German (2014).*

7. Y. L. Liu, K. T. Lin, C. Y. Fang, C. C. Yu, T. C. Yang, Y. S. Lai, and **H. L. Chen***, Controllable localized surface plasmonic resonance phenomena in reduced gold oxide films. 24th *International Conference on Raman Spectroscopy (ICORS), Jena, German (2014).*

8. S. C. Tseng, C. C. Yu, D. C. Lin, Y. C. Tseng, **H. L. Chen**, Y. C. Chen, S. Y. Chou, L. A. Wang, M. T. Tang, and G. C. Yin, Laser-induced jets of nanoparticles: exploiting air drag forces to select the particle size of nanoparticle arrays. *Micro and Nano Engineering (MNE)*, Lausanne, Switzerland (2014).

9. E. Y. Wang, T. C. Yang, Y. L. Liu, C. C. Yu, K. T. Lin, **H. L. Chen***, Using intruded nanoclusters to prepare highly dense nanostructures for the enhancement of omnidirectional light harvest on graphene/silicon photodetectors. *The 6th International Conference on "Recent Progress in Graphene Research" (RPGR2014)*, *Taipei, Taiwan (2014)*.

10. L. Y. Wang, Dehui Wan, **H. L. Chen**, T. C. Tseng, C. Y. Fang, Y. S. Lai, and F. Y. Yeh, Enhanced

efficiency of silicon solar cells by antireflective nanoparticle arrays. *International Microprocesses and Nanotechnology Conference (MNC)*, Fukuoka, Japan (2014).

11. S. H. Tsao, Dehui Wan, C. C. Yu, K. T. Lin, and **H. L. Chen**, Biocompatible namocomposite: ultrahigh broadband absorption and white-light-induced collective heating effects of B. mori Silk/gold nanoparticles thin films. *International Microprocesses and Nanotechnology Conference (MNC)*, Fukuoka, Japan (2014).

12. Dehui Wan, **H. L. Chen**, S. Y. Tseng, C. C. Yu, and K. F. Lin, Using Reversal nanoimprinting of plasmonic nanoparticles to prepare flexible waveguide sensors with enhanced SPR scattering. *Micro and Nano Engineering (MNE)*, Lausanne, Switzerland (2014).

13. Y. C. Lee, T. Y. Lu, Y. T. Yen, C. C. Yu, Y. C. Tsai, Y. C. Tseng and **H. L. Chen*** (2013, Nov). Using astronomical liquid mirrors to prepare ultra-high-sensitive surface-enhanced Raman scattering substrates. International Microprocesses and Nanotechnology Conference (MNC), Hokkaido.

14. P. Y. Su, Y. C. Chen, S. C. Tseng, Y. T. Yen, Y. C. Lee, **H. L. Chen*** and Y. S. Lai (2013, Sep). Using intruded gold nanoclusters with ultrasonic-assisted etching process to construct omnidirectional and broadband antireflective nanostructures in a few seconds. Micro-and-Nano-Engineering (MNE), London.

15. Y. T. Yen, T. Y. Lu, Y. C. Lee, Y. C. Tsai, P. Y. Su, Y. C. Tseng and **H. L. Chen*** (2013, Sep). Highly reflective liquid mirror—exploring the effects of localized surface plasmon resonance and arrangement of nanoparticles on metal liquid-like films. Micro-and-Nano-Engineering (MNE), London.

16. Y. L. Liu, **H. L. Chen***, C. C. Yu and C. Y. Fang (2013, Aug). Rapidly characterize structural qualities of large-area graphene by optical anisotropy. IEEE Nano, Beijing.

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18. Y. L. Liu, C. C. Yu, C. Y. Fang, T. C. Yang, **H. L. Chen***, C. K. Chang, L. C. Chen and K. H. Chen (2013, May). Study of optical anisotropy property to rapidly characterize structural qualities of CVD prepared graphene films. International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication (EIPBN), Tennessee.

19. S. Y. Chou, S. C. Tseng, C. C. Yu and **H. L. Chen*** "Eco-friendly plasmonic sensors: Using the photothermal effect to prepare metal nanoparticle–containing test papers for highly sensitive colorimetric detection", Micro-and-Nano-Engineering (MNE), (2012).

20. C-C Yu, **H. L. Chen***, K-H Ho, S-Y Chuang, S-C Tseng, and W-F Su, "Using the nanoimprint-in-metal method to prepare corrugated metal structures for plasmonic biosensors through both surface

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21. Y. L. Liu, **H. L. Chen***, C C. Yu, C. C. Kuo, C. K. Chang, C. W. Chen, L. C. Chen, K. H. Chen, Y. S. Lai, "Study of optical anisotropic property of chemical vapor deposition prepared graphene films," International Conference on Superlattice, Nanostructures, and Nano Devices (ICSNN) No. 334 (2012)

Patents

專利名稱	國別	專利號碼	專利權人	專利期間
Surface-Enhanced Raman Scattering Substrate and Manufacturing Method Thereof	United State		**H. L. Chen**, S. Y. Chou,C. C. Yu, Y. T. Yen	2017 接受通過
Optical device and method for manufacturing the same	United State	United State Patent No. US 8,928,024 B2	**H. L. Chen**, C. Y. Fang,Y. C. Lee, Y. L. Liu,D. H. Wan, C. C. Yu	2015-
Color Photodetector Apparatus with Multi-Primary Pixels	United State	United State Patent No. US 7,723,763 B2	**H. L. Chen**, Y. S. Lai,W. Y. Wang	2010-
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剪力增稠流體阻泥器		中華民國專利證書號 I 317789	林詠彬、張國鎮、黃震興、李路生、李宗銘、**陳學禮**	2009-
彩色太陽能電池	中國	CN100568538C	**陳學禮**、林詠彬、張國鎮	2009-
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結構之方法	民國	證書號 I294555	徐啟明、鄭劭家、趙健皓、陳俊淇	
奈米粒子圖形的形成方法	中華民國	中華民國專利證書號 I281098	**陳學禮**、朱育宏、郭建億、劉福鯤、柯富祥、朱鐵吉	2007-
含芙阻劑、製備方法與微影製程	中華民國	中華民國專利證書號 I273351	柯富祥、雷添福、游信強、**陳學禮**、黃調元	2007-
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低介電係數層奈米圖案直接定義技術	中華民國	中華民國專利證書號 I220541	柯富祥、賴義凱、陳本昌、林鴻志、劉柏村、戴寶通、**陳學禮**，黃調元	2004-

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