郭茂坤　個人簡歷

1. 個人資料：

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2. 學歷：

1984：　（美國）西北大學博士（土木系）
1979　、臺灣大學碩士、學士（土木系）
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3. 獲獎：

2012 台大特聘教授
2012, 2004 台大教學傑出獎；
1987, 1999, 2003, 2009 台大教學優良獎；1987 教育部教學傑出獎

4. 專長：

奈米金屬結構光學特性、固體力學分析及模擬

5. 研究興趣：奈米光電以及相關的奈米力學（擬收學生數 3 人）

(a) 超穎材料在聲學、光電與生醫的應用

(b) 金奈米粒子及電漿子相關研究

我們探討了一系列奈米金屬粒子與光交互作用下的現象；發現由於 Maxwell 應力作用，兩根互相平行但不同長度的奈米銀桿，受到近紅外光照射，短桿將旋轉成平行於入射光的及化方向，而長桿則將旋轉成垂直於入射光的及化方向。此現象有助於光鑷子的應用，同時另發現光渦漩的現象。

研究主題：

(1) 電漿子增強之光鑷子、光渦漩研究
(2) 金奈米粒子的光熱效應研究
(3) 光化學合成金奈米片研究 (實驗)

6. 研究成果目錄：

(1) J. W. Liaw*, M. C. Huang, C. W. Huang, Y. C. Ku, M. K. Kuo*, 2019, Light-driven self-organization of gold clusters by linearly polarized Gaussian beam, Journal of Quantitative Spectroscopy & Radiative Transfer, 233, 35–41.
(2) J. W. Liaw*, M. C. Huang, H. Y. Chao, M. K. Kuo*, 2018, Spin and orbital rotation of plasmonic dimer driven by circularly polarized light, Nanoscale Research Letters, **13**, 322.
(3) J. W. Liaw*, C. W. Chien, K. C. Liu, Y. C. Ku, M. K. Kuo*, 2018, 3D optical vortex

trapping of plasmonic nanostructure, Scientific Reports, **8**, 12673.

(4) J. W. Liaw*, C. W. Huang, M. C. Huang, M. K. Kuo*, Plasmon-enhanced optical bending and heating on V-shaped deformation of gold nanorod, 2018, Applied Physics A- Materials Science & Processing **124**, 17

(5) J. W. Liaw*, H. Y. Chao, C. W. Huang, M. K. Kuo*, 2018, Light-driven self-assembly of hetero-shaped gold nanorods, Applied Physics A-Materials Science & Processing **124**, 16

(6) J. W. Liaw*, W. C. Lin and M. K. Kuo*, 2017, Wavelength-Dependent Plasmon-Mediated Coalescence of Two Gold Nanorods, Scientific Reports, **7**, 46095.

(7) D. J. Y. Feng, Y. J. Lin, Y. C. Ku, H. Y. Jhang, T. R. Lin, and M. K. Kuo*, 2017, GaAsSb spacer effect in quasi-type-II InAs coupled-QDs for intraband absorption enhancement, Optical Materials Express, **7**, 1351-1364.

(8) J. W. Liaw*, Y. S. Chen, M. K. Kuo*, 2016, Spinning gold nanoparticles driven by circularly polarized light, Journal of Quantitative Spectroscopy & Radiative Transfer, **175**, 46–53.

(9) J. W. Liaw*, Y. S. Chen, M. K. Kuo*, 2016, Maxwell stress induced optical torque upon gold prolate nanospheroid, (invited paper) Applied Physics A - Materials Science & Processing, **122**: 182

(10) J. W. Liaw*, H. Y. Wu, C. C. Huang and M. K. Kuo*, 2016, Metal-enhanced fluorescence of silver island associated with silver nanoparticle, Nanoscale Research Letters 11:26.

(11) J. W. Liaw*, T. Y. Kuo, M. K. Kuo*, 2016, Plasmon-mediated binding forces on gold or silver homodimer and heterodimer, Journal of Quantitative Spectroscopy & Radiative Transfer, **170**, 150–158.

(12) J. W. Liaw*, W. J. Lo, W. C. Lin, M. K. Kuo*, 2015, Theoretical study of optical torques for aligning Ag nanorods, Journal of Quantitative Spectroscopy & Radiative Transfer, **162**, 133–142.

(13) J. W. Liaw*, B. R. Chen, M. K. Kuo, 2015, Plasmon-mediated excitation modulation of FRET by silver nanoshell, Microelectronic Engineering, **138**, 122-127.