出國報告 (出國類別: 國際會議)

# 第六十屆美國質譜學會年會

服務機關: 國立中興大學化學系
姓名職稱: 李茂榮 教授
派赴國家: 加拿大
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# 摘要

美國質譜學會年會(ASMS Conference Mass Spectrometry)係由美國化學學會所屬之質譜學會(American Society of Mass Spectrometry, ASMS)主辦，為促進全世界有關質譜技術開發與應用，所舉辦之國際性會議作為學者、研究者與廠商之交流，固定每年五、六月間舉辦一次。大會安排議程中，除各項領域應用技術之開發及儀器之發展前瞻性論文，報告及海報論文外，並有全世界質譜儀各廠牌之廠商產品展示和 workshop，以提供最新型儀器功能介紹。今年為第六十屆會議，特於 2012 年 5 月 20 日至 5 月 24 日，在加拿大溫哥華 (Vancouver, Canada)舉行，與會者多為學術先進機構與工業界人士，從會議論文研討方式可窺其走勢，質譜科學於生化、食品安全、環境污染、床醫學等領域之研究是一不可或缺的利器。於本次會議中本人亦擔任口頭報告會議(oral section)的共同主持人，主題為” Food Safety: Advances in MS for Characterization of Additives and Contamiants ”，並與研究生發表多篇海報論文，題目為(1) 利用固定化多層奈米碳管修飾中空纖維結液相微萃取技術於尿液中微量利尿劑之研究(Determination of diuretics in urine using immobilized-multiwalled carbon nanotubes hollow fiber liquid-phase microextraction combined with liquid chromatography-mass spectrometry) ; (2) 開發液相層析串聯質譜術快速篩檢尿液中多種違禁藥物之研究(High throughput screening of various abused drugs in urine by ultra high performance liquid chromatography/tandem mass spectrometry) ; (3)利用官能化奈米粒子結合液相層析質譜術於尿液中紫外光吸收劑之研究(Analysis of Ultraviolet Absorbers in Urine Samples by Functionalized Nanoparticles-assisted Electrospray Mass Spectrometry) ; (4) 利用正交實驗最佳化吹氣輔助頂空固相微萃取技術結合氣相質譜術於化妝品中添加物之分析研究(Orthogonal array optimization of purge-assisted headspace solid-phase microextraction combined with gas chromatography-mass spectrometry for determination of additives in cosmetics)。

# 目錄

一、目的.....1
二、參加會議經過.....4
三、與會心得及建議.....10

# 一、目的

美國質譜學會年會(ASMS Conference Mass Spectrometry)係由美國化學學會所屬之質譜學會(American Society of Mass Spectrometry, ASMS)主辦，為促進質譜技術開發與應用，所舉辦之國際性會議，每年五、六月間舉辦一次，主要目的為促進質譜研究相關的學者、研究人員和廠商之間的交流。大會議程中，除各項領域應用技術之開發及儀器之發展前瞻性論文，報告及海報論文外，並有全世界質譜儀各廠牌之廠商產品展示和 workshop，以提供最新型儀器功能介紹。與會者多為學術先進機構與工業界人士，為此領域最具代表性人士，藉由參與國際大型會議的過程中，除了瞭解目前世界各國研究趨勢外，也可與世界各國先進進行交流，與國際接軌。

本實驗室主要研究是利用質譜術進行環境化學、鑑識化學、藥物化學、藥物代謝體等微量分析之偵測，亦進行氣相中離子與分子間反應現象探討。近五年完成的研究有：“Application of C7 hydrocarbons technique to oil and condensate from type III organic matter in Northwestern Taiwan” (Int. J. Coal Geol., 2007)；“以頂空衍生化 SPME-GC/MS 方式偵測醬油內 1,3-dichloro-2-propanol 和 3-chloro-1,2-propandiol 的含量”（Anal. Chim. Acta, 2007）；“SPME/LC/MS 分析肉類殘留的磺胺類化合物”（Talanta, 2007）；“液相層析質譜術分析尿液中 ketamine 及其新陳代謝物”（Talanta, 2007）；“以 LC/APCI/MS 同時分析尿液中的 ketamine, norketamine 以及 dehydronorketamine”（J. Chin. Chem. Soc., 2007）；“以 cation-selective exhaustive injection 毛細電泳法分析頭髮內甲基安非他命、愷他命、嗎啡以及可待因的含量”（J. Chromatogr. A, 2007）；“以超臨界流體萃取搭配 LC-APCI-MS/MS 分析紅棗內黃麴毒素的含量”（Rapid Commun. Mass Spectrom., 2007）；“以 LC-APCI-MS 分析大清葉及板藍根中 tryptanthrin, indigo, and indirubin 的含量”（J. Pharm. Biomed. Anal., 2007）；“Quality control of Chinese medicinal preparations LC/ESI(+)/MS/MS analyses of saikosaponins-a and - c as markers of Bupleuri radix samples”（J. Pharm. Biomed. Anal., 2007）；“確認及比較經半發酵或乾燥處理烏龍茶葉後於其內酚類化合物的差異”（J. Agri. Food Chem., 2007）；“SPME 搭配快速冷凍捕捉 GC/MS 分析水中次 ng/L 含量的苯、甲苯、乙 基苯和二甲苯之含量”（Chemosphere, 2007)；”以 LC/MSn 快速鑑定烏龍茶裡的 Acylated Flavonol Tetraglycosides”（Phytochem. Anal.,2008）; LPME 結合 LC-ESI-MS/MS 分析尿液中的利尿劑（Talanta, 2008）; 以 SPME-GC/MS 分析化妝品中的抗氧化劑以及防腐劑（Chromatographia, 2008）; 以 Cation-selective exhaustive injection 毛細電泳法分析尿液中嗎啡及其新陳代謝物” (Electrophoresis, 2008)；“以

LPME 結合 GC/MS 方式分析環境樣品中氯酚的含量（Talanta, 2008）；“Massive Accumulation of Gallic Acid and Unique Occurrence of Myricetin, Quercetin and Kaempferol in Preparing Old Oolong Tea”（J. Agri. Food Chem., 2008）。“溶劑誘導微波衍生化方式偵測尿液中的安非他命以及甲基安非他命”（J. Chromatogr. B, 2008）；“以吹氣輔助頂空固相微量萃取法（Purge-assisted headspace solid-phase microextraction，PA/HS-SPME）結合氣相層析質譜術偵測水中氯酚類化合物”（J. Chromatogr. A, 2008）；“Beneficial effects of different tea flowers against human breast cancer MCF-7 cells” (Food Chem., 2009)；“以高通量（high throughput）初篩方式搭配加熱式電灑法液相層析串聯質譜術偵測尿液中各種濫用藥物及其新陳代謝物”（Talanta, 2009）；“以正交實驗設計法最佳化微波輔助衍生化於微量安非他命與甲基安非他命之分析” （J. Chromatogr. A, 2009）；“Pu-erh Tea Attenuates Hyperlipogenesis and Induces Hepatoma Cells Growth Arrest through Activating AMP-Activated Protein Kinase (AMPK) in Human HepG2 Cells” （J. Agric. Food. Chem, 2009）；“Analysis of Volatile Compounds Emitted from Chimonanthus Praecox (L) Link in Different Florescence and QSRR Study of GC Retnetion Indices” （Chromatographia, 2009）；“超臨界流體同時衍生化偵測蝦中氯黴素、氟甲磺氯黴素與甲砜黴素”（Food Chem., 2010）；“利用多重串聯質譜術於烏龍茶中兒茶素(EGCG)與沒食子(GA)酸變化之研究”（Rapid Commun. Mass Spectrom., 2010）；“Simultaneous production of Trehalose, Bioethanol and high protein production from rice by enzymatic process”（J. Agric. Food. Chem., 2010）；“超臨界流體萃取結合線上固相微萃取技術於化妝品中添加物之分析”（Anal. Chim. Acta, 2010）；“電輔助固相微萃取結合液相層析質譜術於水中巴拉松之研究”（Talanta, 2010）；“Modulation of energy deficiency in Huntington's disease via activation of the peroxisome proliferator-activated receptor gamma”（Hum. Mol. Genet., 2010）；“Supercritical Carbon Dioxide Micronization of Zeaxanthin from Moderately Thermophilic Bacteria Muricauda lutaonensis CC-HSB-11T”（J. Agric. Food Chem., 2011）；“Electrochemical Profiling using Copper Nanoparticle-plated Electrode for Identification of Ostrich Meat and Evaluation of Meat Grades”（Food Chem., 2011）；“固相微萃取結合氣相層析質譜術於尿液與塑膠容器盛裝水中微量釋出可塑劑之研究”（Anal. Lett., 2011）；“Microdialysis combined blood sampling technique for the determination of rosiglitazone and glocose in brain and blood of gerbils subjected to cerebral ischemia”（J. Pharm. Biomed. Anal., 2011）；“利用液相層析-線性離子阱質譜儀偵測工業廢水中壬基酚類化合物之研究”（J. Chin. Chem. Soc., 2011）；“利用多重串聯質譜術鑑定人體血清中氯黴素次級代謝物之研究”（Rapid

Commun. Mass Spectrom., 2011）；“超聲波輔助分散式液相-液相微萃取結合液相層析質譜術於食用油中微量有機砷化合物之研究”（Anal. Chim. Acta, 2011）；“頂空固相微萃取結合氣相層析串聯質譜術於河川底泥中微量多氟羧酸化合物之研究”（J. Chromatogr. A, 2011）；“Liquid chromatography incorporating ultraviolet and electrochemical analyses for dual detection of Zeranol and Zearalenone metabolites in moldy grains”（J. Sci. Food Agric., 2011）；“離子液體修飾固相微萃取纖維結合頂空採樣-氣相層析質譜術偵測垃圾滲水物中微量氯酚之研究”（Anal. Chim. Acta, 2012）；“Determination of perfluorocarboxylic acids in water by ion-pair dispersive liquid-liquid microextraction and gas chromatography-tandem mass spectrometry with injection port derivatization”（Anal. Chim. Acta, 2012）；“Purge-Assisted Headspace Solid-Phase Microextraction Combined with Gas Chromatography/Mass Spectrometry for the Determination of Trace Nitrated Polycyclic Aromatic Hydrocarbons in Aqueous Samples”（J. Chromatogr. A, 2012）；“Determination of cyromazine and melamine in chicken eggs using Quick, Easy, Cheap, Effective, Rugged and Safe (QuEChERS) extraction coupled with liquid chromatography tandem mass spectrometry”（Anal. Chim. Acta, 2012）。對於複雜基質中開發不同的萃取技術結合質譜技術的應用，用以解決各種領域中微量檢測的問題。本次會議中本人除了擔任口頭報告會議(oral section)的共同主持人，亦帶領研究生何澤宗發表四篇海報論文，發表題目分別為(1) 利用固定化多層奈米碳管修飾中空纖維結液相微萃取技術於尿液中微量利尿劑之研究 (Determination of diuretics in urine using immobilized-multiwalled carbon nanotubes hollow fiber liquid-phase microextraction combined with liquid chromatography-mass spectrometry)；(2) 開發液相層析串聯質譜術快速篩檢尿液中多種違禁藥物之研究(High throughput screening of various abused drugs in urine by ultra high performance liquid chromatography/tandem mass spectrometry)；(3) 利用官能化奈米粒子結合液相層析質譜術於尿液中紫外光吸收劑之研究 (Analysis of Ultraviolet Absorbers in Urine Samples by Functionalized Nanoparticles-assisted Electrospray Mass Spectrometry)；(4) 利用正交實驗最佳化吹氣輔助頂空固相微萃取技術結合氣相質譜術於化妝品中添加物之分析研究(Orthogonal array optimization of purge-assisted headspace solid-phase microextraction combined with gas chromatography-mass spectrometry for determination of additives in cosmetics)。

## 二、參加會議經過

第六十屆美國質譜學會年會(60th ASMS Conference Mass Spectrometry)係由美國化學學會所屬之質譜學會(American Society of Mass Spectrometry, ASMS)主辦，為促進質譜技術開發與應用，所舉辦之國際性會議，每年五、六月間舉辦一次，一般皆在美國境內舉行。今年為第六十屆會議，故移至美國境外舉行，於 2012 年 5 月 20 日至 5 月 24 日，在加拿大溫哥華 (Vancouver, Canada)舉行，與會者多為學術先進機構與工業界人士，為此領域最具代表性人士。大會安排議程中，除各項領域應用技術之開發及儀器之發展前瞻性論文，報告及海報論文外，並有全世界質譜儀各廠牌之廠商產品展示和 workshop，以提供最新型儀器功能介紹。此次大會，台灣與會者，除筆者外，尚有中央研究院陳仲瑄教授，中山大學謝建台教授，台灣大學何國榮教授，東華大學何彥鵬教授，東吳大學傅明仁教授，成功大學廖寶琪教授，中正大學陳皓君教授，高師大徐永源教授，中央研究院陳玉如教授，中央研究院陳逸然教授，東華大學彭文平教授及多位研究生。

大會於5月20日下午舉行歡迎式，在歡迎會之前，即由Jentaie Shiea (National Sun Yat-Sen University)與Keith A. Baggerly (MD Anderson Cancer Center)進行專題演講，講題分別為”Ambient Mass Spectrometry: Analysis in the Real World by a “Green” Technology”與”Statistics and Fornsics Bioinformatics: Analytic Issues in High-Throughout Biology”。謝建台教授專長為大氣壓質譜技術開發，於會中分別介紹大氣壓質譜術(ambient mass spectrometry)各項技術，由於此技術同時包含採樣(sampling)、脫附(desorption)以及游離化(ionization)，因此在分析過程中簡略過去繁瑣的樣品處理步驟與有機溶劑之使用，因此可視為一綠色分析技術(green technology)。接下來四天，即進行分為八個議事廳，同時進行的分組論文研討和壁報論文研討，且主題涵蓋範圍廣泛，包含質譜影像(image MS)、代謝體學(metabolomics)、環境化學品與毒物(environmental chemistry and toxicology)、醣蛋白(glycoproteins)、離子激化與解離之基礎理論(fundamentals of ion activation and dissociation)、核酸質譜技術於製藥應用(pharmaceutical applications of nucleic acid mass spectrometry)、聚合質譜術(polymeric mass spectrometry)等等。大會演講則於5月21日下午由本年度獲得最佳貢獻獎得主進行演說，今年得主為Catherin C. Fenselau教授 (University of Maryland)，主要貢獻為利用新式離子化方法結合質譜術快速直接分析細菌細胞非揮發性指標性成份，並結合統計學運算建立生物指標(biomarker profiles)進行混合細胞類別的區分。質譜影像(mass image)主題分別在5月21日與22日兩日進行探討，分為應用與儀器裝置兩部份進行探討，在應用方面主要是在

生物樣品中代謝物質分佈與提升影像解析度的研究為主，而在儀器裝置方面，此領域之發展初期大多是以雷射基質輔助脫附游離法，此技術受限於須在真空條件下進行，且為了提升影像的解析度與偵測靈敏度，許多研究學者分別利用雷射/紅外光雷射剝除法、奈米流速電噴灑游離法，以及傳統電噴灑/大氣壓游離法進行探討。於5月22日與23日下午皆有環境化學相關主題探討，21日探討主題著重於化學有毒物質於環境與動物體中的分佈，其中一篇”Mass Spectrometry Based Biomarker Analysis of Organophosphorus Exposure in Agricultural Workers”主要是利用質譜技術探討勞工暴露於有機磷化學物質環境中生物指標成分的分析，此攸關於勞工職場安全與健康息息相關，亦顯示環境安全衛生的重要性。

在5月24日筆者亦擔任口頭報告(oral section)的共同主持人，主題為”Food Safety: Advances in MS for Characterization of Additives and Contamiants”，此section主要針對質譜技術在食品安全應用的討論，因台灣質譜學會在這方面有相當多之研究，故大會委由台灣質譜學會負責此一section之講者與內容。會中發表兩篇分別利用paper spray ioinization mass spectrometry與mobile ambient mass spectrometry分析食品中之可塑劑，改善過去傳統分析過程受限於分析時間與地點之影響，可達到即時採樣與檢測特點；此外，所發表的研究中成果中大多都是利用液相層析串聯質譜術(liquid chromatography-mass spectrometry, LC-MS)，針對在食品中添加物、微生物毒素以及食品包裝材化學物質滲透等有害物質分析，應用相當廣泛。會議傍晚亦針對各種不同領域舉行Workshop，每晚則有各質譜廠商所舉辦之Hospitality，讓與會人士能互相交流至深夜。讓筆者於此會議收穫良多。今年參與人數眾多，單壁報論文即三千篇左右，而且每天早上7:00至8:00，安排質譜儀器廠商介紹新知，接下來即分組討論或壁報論文。

《大會議程》

**SATURDAY**

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|---|---|
| 9:00 AM - 4:30 PM | **SHORT COURSES** |
| 2:00 - 5:00 PM | **REGISTRATION** |

**SUNDAY**

| | |
|---|---|
| 9:00 AM - 4:30 PM | **SHORT COURSES** |
| 10:00 AM - 8:00 PM | **REGISTRATION** |
| 5:00 - 6:30 PM | **TUTORIAL LECTURES**, Exhibit Hall A<br>  <br>**5:00 - 5:45 pm**<br>Ambient Mass Spectrometry: Analysis in the Real World by a "Green" Technology<br>**Jentaie Shiea**<br>National Sun Yat-Sen University<br><br>  <br>5:45 - 6:30 pm<br>Statistics and Forensic Bioinformatics: Analytic Issues in High-Throughput Biology<br>**Keith A. Baggerly**<br>MD Anderson Cancer Center |
| 6:45 - 7:45 PM | **CONFERENCE OPENING**, Exhibit Hall A<br>**Susan T. Weintraub,** *ASMS Vice President for Programs*<br><br>  <br>**Plenary Lecture**<br>**7:00 - 7:45 pm**<br>The Deepwater Horizon Oil Spill:<br>From the Pipe to the Plume<br>**Chris Reddy**<br>Woods Hole Oceanographic Institution |
| 7:45 - 9:30 PM | **RECEPTION IN THE POSTER-EXHIBIT HALL**, Exhibit Hall BC |

# 【5月21日議程】

## MONDAY

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|---|---|
| **7:00 AM - 5:00 PM** | **REGISTRATION** |
| **8:30 - 10:30 AM** | **ORAL SESSIONS**<br>• MOA am: Disease Biomarkers and Pathways, Ballroom A<br>• MOB am: Time-of-flight Mass Spectrometry: New Developments in Instrumentation and Applications, Ballroom B<br>• MOC am: Quantitative Analysis by MS in Drug Discovery and Development: Novel Approaches, Ballroom C<br>• MOD am: Traditional Chinese Medicine and Bioactive Natural Products: Advances in MS Analysis, Room 118-120<br>• MOE am: Biotherapeutics and their Impurities and Degradants: Structural Characterization and QC, Room 211-214<br>• MOF am: Radical-driven Peptide Fragmentation, Room 220-222<br>• MOG am: Fundamentals: Ambient and Atmospheric Pressure Ionization, Room 301-305<br>• MOH am Post-translational Modification: Beyond Phosphorylation, Exhibit Hall A |
| **10:30 AM - 2:30 PM** | **POSTER SESSION AND EXHIBITS,** Exhibit Hall BC<br>Monday Posters |
| **2:30 - 4:30 PM** | **ORAL SESSIONS**<br>• MOA pm: Protein-Protein and Protein-Ligand Interactions: Characterization by Mass Spectrometry, Ballroom A<br>• MOB pm: FTMS: New Developments in Instrumentation, Ballroom B<br>• MOC pm: Integrated Qualitative and Quantitative LC-MS for Small Molecule Analysis, Ballroom C<br>• MOD pm: Microorganisms: Identification and Characterization, Room 118-120<br>• MOE pm: Biotherapeutics and Biomarkers: New Developments in Quantitative Analysis, Room 211-214<br>• MOF pm: Fundamentals: Ion Spectroscopy, Room 220-222<br>• MOG pm: Ambient Ionization: Instrumentation and Applications, Room 301-305<br>• MOH pm: PTMs:Comprehensive Analysis and Combinatorial Patterns, Exhibit Hall A |
| **4:45 - 5:30 PM** | **AWARD LECTURE,** Exhibit Hall A<br>  <br>**Award for a Distinguished Contribution in Mass Spectrometry**<br>**Catherine C. Fenselau**<br>*University of Maryland* |
| **5:45 - 7:00 PM** | **WORKSHOPS** There are light refreshments on levels 1 and 2.<br>• MWksh1: Characterization and Quantitation of Antibody Drug Conjugates, Room 109<br>• MWksh2: The Future of Proteomics Data Repositories, Room 110<br>• MWksh3: Mass Spectrometry Applications in Art, Cultural Heritage, and Natural History, Room 114-115<br>• MWksh4: Young Mass Spectrometrists: A Focus on Career Development, Room 116-117<br>• MWksh5: Structures, Reactions and Thermochemistry of Gas-Phase Ions (in Honor of Alex Harrison's 80th Birthday), Room 118-120<br>• MWksh6: Characterization and Quantitation of Protein Therapeutics, Room 211-214<br>• MWksh7: Current Topics in Mass Spectrometry: A Workshop for Undergraduates, Room 215-216<br>• MWksh8: FTMS Workshop, Room 217-219<br>• MWksh9: Bioanalysis in R&D: Regulatory Submission Challenges and Opportunities, Room 220-222<br>• MWksh10: Metabolomics – Coming of Age in the "Omics" World: Part I: The Basics, Room 301-305 |
| **7:00 - 8:00 PM** | **DINNER BREAK** |
| **AFTER 8:00 PM** | **CORPORATE HOSPITALITY SUITES,** East Building |

【5月22日議程】

## TUESDAY

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| **7:00 AM - 5:00 PM** | **REGISTRATION** |
| **8:30 - 10:30 AM** | **ORAL SESSIONS**<br>• TOA am: Informatics: Validation, Ballroom A<br>• TOB am: Imaging MS: Biological Applications, Ballroom B<br>• TOC am: Ion Traps and Hybrid Instruments: New Developments, Ballroom C<br>• TOD am: Applications, Room 118-120<br>• TOE am: Biomarkers in Drug Discovery and Development, Room 211-214<br>• TOF am: Distonic Radical Ions: Fundamentals and Applications, Room 220-222<br>• TOG am: FAIMS and DMS: New Developments and Applications, Room 301-305<br>• TOH am: Systems Biology/Cellular Pathways, Exhibit Hall A |
| **10:30 AM - 2:30 PM** | **POSTER SESSION AND EXHIBITS,** Exhibit Hall BC<br>Tuesday Posters |
| **2:30 - 4:30 PM** | **ORAL SESSIONS**<br>• TOA pm: Informatics: Identification, Ballroom A<br>• TOB pm: Imaging MS: Pharmaceutical Applications, Ballroom B<br>• TOC pm: Instrumentation: New Developments in Ionization and Sampling, Ballroom C<br>• TOD pm: Plant "omics", Room 118-120<br>• TOE pm: Biomarkers of Drug Toxicity, Response & Efficacy Biomarkers: Innovative MS Approaches, Room 211-214<br>• TOF pm: Gas-Phase Ions: Reactions and Dynamics, Room 220-222<br>• TOG pm: Petroleum and Biofuel Research: Advances in MS Analyses, Room 301-305<br>• TOH pm: Quantification of Targeted Proteins and Post-translational Modification, Exhibit Hall A |
| **4:45 - 5:30 PM** | **AWARD LECTURE,** Exhibit Hall A<br>  <br>**Biemann Medal**<br>**Joshua J. Coon**<br>*University of Wisconsin-Madison* |
| **5:45 - 7:00 PM** | **WORKSHOPS** There are light refreshments on levels 1 and 2.<br>• TWksh1: Metabolomics – Coming of Age in the "Omics" World: Part II: Advanced, Room 109<br>• TWksh2: Analytics of Fossil Fuels and Biofuels: Where Do We Stand?, Room 110<br>• TWksh3: Current Topics in Metal Ion Chemistry, Room 114-115<br>• TWksh4: Computational Challenges in Identification and Quantification, Room 116-117<br>• TWksh5: Imaging MS: Developing Quantitative Imaging, Room 118-120<br>• TWksh6: H/D Exchange and Covalent Labeling, Room 211-214<br>• TWksh7: Who Ran That? Guidelines for Authorship and Acknowledgement of Mass Spectrometrists and their Laboratories in Scientific Literature, Room 215-216<br>• TWksh8: Challenges and Advances in Glycomics and Glycoproteomics, Room 217-219<br>• TWksh9: Hot Topics in LC-MS Instrumentation Troubleshooting, Room 220-222<br>• TWksh10: Mass Spectrometry in the Clinical Lab: Time for Self Assessment, Room 301-305 |
| **7:00 - 8:00 PM** | **DINNER BREAK** |
| **AFTER 8:00 PM** | **CORPORATE HOSPITALITY SUITES,** East Building |

【5月23日議程】

**WEDNESDAY**

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|---|---|
| **7:00 AM - 5:00 PM** | **REGISTRATION** |
| **8:30 - 10:30 AM** | **ORAL SESSIONS**<br>• WOA am: Informatics: Quantification, Ballroom A<br>• WOB am: Imaging MS: Instrumentation and Ionization Sources, Ballroom B<br>• WOC am: Accurate Mass Applications: Pharmaceutical, Bioanalytical, and Clinical, Ballroom C<br>• WOD am: Advances in Nano-scale Separations for MS Analysis, Room 118-120<br>• WOE am: Carnohydrate Analysis: New Developments, Room 211-214<br>• WOF am: Polymer MS: Materials, Medical Devices, and Pharmaceuticals, Room 220-222<br>• WOG am: H/D Exchange: Protein Structure/Function, Room 301-305<br>• WOH am: Intact Proteins, Exhibit Hall A |
| **10:30 AM - 2:30 PM** | **POSTER SESSION AND EXHIBITS,** Exhibit Hall BC<br>Wednesday posters |
| **2:30 - 4:30 PM** | **ORAL SESSIONS**<br>• WOA pm: Environmental Chemistry and Toxicology, Ballroom A<br>• WOB pm: Metabolomics: Clinical Applications, Ballroom B<br>• WOC pm: Regulated Bioanalysis using High Resolution LC/MS: Headache or Opportunity? Ballroom C<br>• WOD pm: Overcoming Challenges in MS Analysis through Improvements in Sample Preparation, Room 118-120<br>• WOE pm: Glycoproteins: New MS Approaches, Room 211-214<br>• WOF pm: Fundamentals of Ion Activation and Dissociation, Room 220-222<br>• WOG pm: H/D Exchange: New Developments in Technology, Room 301-305<br>• WOH pm: Quantitative Proteomics, Exhibit Hall A |
| **4:45 - 5:30 PM** | **ASMS MEETING,** Ballroom A Wine, beer, soft drinks |
| **5:45 - 7:00 PM** | **WORKSHOPS** There are light refreshments on level 1 and 2<br>• WWksh1: Pharmaceutical Applications of Nucleic Acid Mass Spectrometry, Room 109<br>• WWksh2: Challenges and Opportunity in Water and Health Research, Room 110<br>• WWksh3: Quantitative Intact Proteomics (QIP), Room 114-115<br>• WWksh4: Trans-Proteomic Pipeline (TPP) and Related Open-Source Proteomics Resources, Room 116-117<br>• WWksh5: Data-independent Acquisition, Room 118-120<br>• WWksh6: Navigating an Increasingly Complex Regulatory LC-MS Landscape, Room 211-214<br>• WWksh7: New Capabilities for Polymeric Materials, Room 215-216<br>• WWksh8: Ambient Ionization Quantitation and Imaging for Flavors, Fragrance and Foodstuffs, Room 217-219<br>• WWksh9: Applying Ion Mobility-Mass Spectrometry to Challenges in Proteomics and Systems Biology, Room 220-222<br>• WWksh10: Our Current Toolbox of Peptide Dissociation Methods: What More Do We Wish For?, Room 301-305 |
| **7:00 - 8:00 PM** | **DINNER BREAK** |
| **AFTER 8:00 PM** | **CORPORATE HOSPITALITY SUITES,** East Building |

【5月24日議程】

**THURSDAY**

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|---|---|
| **7:00 AM - 5:00 PM** | **REGISTRATION** |
| **8:30 - 10:30 AM** | **ORAL SESSIONS**<br>• ThOA am: Food Safety: Advances in MS for Characterization of Additives and Contaminants, Ballroom A<br>• ThOB am: Metabolomics/Lipodomics: New MS Technologies and Applications, Ballroom B<br>• ThOC am: Biological Samples, Ballroom C<br>• ThOD am: Fundamentals of Peptide Fragmentation, Room 118-120<br>• ThOE am: Biomolecular Structure Analysis by Covalent Labeling: Future Directions, Room 211-214<br>• ThOF am: Nucleic Acids: Emerging Trend, Room 220-222<br>• ThOG am: Ion Movility: Fundamentals, Room 301-305<br>• ThOH am: Phosphoproteomics, Exhibit Hall A |
| **10:30 AM - 2:30 PM** | **POSTER SESSION AND EXHIBITS,** Exhibit Hall BC<br>Thursday posters |
| **2:30 - 4:30 PM** | **ORAL SESSIONS**<br>• ThOA pm: Environmental Contaminants: The Role of MS in the 21st Century, Ballroom A<br>• ThOB pm: Lipids, Ballroom B<br>• ThOD pm: Food "omics": MS Characterization of Food and Nutritional Supplements, Room 118-120<br>• ThOE pm: Antibodies and Antibody-Drug Conjugates: Quantitation and Characterization, Room 211-214<br>• ThOF pm: Ion Manipulation, Analysis and Detection: New Developments, Room 220-222<br>• ThOG pm: Ion Mobility: Applications, Room 301-305<br>• ThOH pm: PTMs: Advances in Isolation, Derivatization and Separation, Exhibit Hall A |
| **4:45 - 5:30 PM** | **PLENARY LECTURE,** Exhibit Hall A<br>  <br>The Secret Life of Food<br>**Shirley O. Corriher**<br>Food scientist, TV personality, author and columnist |
| **5:45 - 9:00 PM** | **CLOSING GALA,** Ballroom |

## 三、與會心得及建議

本次會議含報告研討和壁報論文方式，參與者能廣泛交換經驗心得，大家感到受益良多，雖然大會議程只有短短幾天，但所發表的均是質譜最新進展和技術，無論是口頭報告或壁報論文，皆以特性分組，包含儀器特性、環境應用、食品安全分析、情治藥物應用、生化大分子、蛋白質體(proteomics)、代謝體(metabolomics)分析等。今年發表論文中多偏重於生化方面分析與應用，其討論之組別包含 neuropeptides (神經胜肽)，phosphopeptides (磷酸化胜肽)，peptidomics (胜肽質體學)，biomolecular structure analysis (生物分子結構分析)，glycoprotein (醣蛋白)，biomarker (生物指標)等，亦即研討如何開發和應用質譜儀技術於生物科技領域，利用各式質譜技術提供的資訊，協助解決生物科技所面臨的問題。此外，在本次會議中亦針對食品安全(food safety)與環境汙染物(environmental contaminants)進行分組討論。從此次會議論文研討方式可窺其走勢，由此可見，質譜科學於生化、食品安全、環境污染、床醫學等

領域之研究是一不可或缺的利器，尤其在食品安全領域，與我們生活息息相關，因此更顯得重要。希望能多鼓勵國內研究學者多參與此重要性研討會，大力支助國內學者參與國際相關學術研討會，提高與國際交流機會，尤其無法參與此類研討會之研究人員和學者；並協助國際研討會來台舉辦，對於國內學術研究水準的提升有相當大的助益；增加國內研究經費預算，功亦善其事，必先利其器，有先進之儀器，才有研究競爭之基礎能力，尤其質譜技術之創新，可以說是日新月異，今年大陸即由國家組團前往，可見其重視，反觀我國卻由每個教授想辦法儘量處理研究生和鼓勵他們參與此會議，建議政府相關部門應重視之。