Chi Chung Yu (Jorn Yu) Associate Professor Department of Forensic Science College of Criminal Justice Sam Houston State University

## **Degree Earned**

Ph.D. in Chemistry, Carleton University, Ottawa, ON, Canada, 2006M.S. in Forensic Science, Central Police University, Taiwan, 2000B.S. in Forensic Science, Central Police University, Taiwan, 1994

#### **Professional Licensure and Certifications**

Diplomate – American Board of Criminalistics (Comprehensive Criminalistics). Physical Significance of Bloodstain Evidence, Laboratory of Forensic Science, Corning, NY.

# Peer-Review Publications and Artistic Performances/Exhibitions

Articles

Kovacs, K; Jayanna, P.K.; Duke, A.; Winner, B.; Negrito, M.; Angalakurthi, S.; Yu, J.; Füredi, P.; Ludányi, K.; Sipos, P.; Rockwood G.A.; Petrikovics, I. A Lipid Base Formulation for Intramuscular Administration of a Novel Sulfur Donor for Cyanide Antagonism. *Current Drug Delivery*. **2016**, 13:1-7.

Li, M.; Lu, J.; Qi, J.; Zhao F.; Zeng, J.; Yu, J. C.C.; Shih W.C. Stamping surface-enhanced Raman spectroscopy for label-free, multiplexed, molecular sensing and imaging. *Journal of Biomedical Optics.* **2014**, 19(5): 050501.

Zeng, J.; Qi, J.; Bai, F.; Yu, J.C.C.; Shih, W.C. Analysis of ethyl and methyl centralite vibrational spectra for mapping organic gunshot residues, *Analyst.* **2014**,139, 4270-4278.

Contreras, P.A.; Houck, S.S.; Davis, W.M.; Yu, J.C.C. Pyrolysis products of linear alkylbenzenes – implications in fire debris analysis, *Journal of Forensic Science*. **2013**, 58(1), 210-216.

Stein, D.; Yu, J.C.C. The use of near-infrared photography to image fired bullets and cartridge cases, *Journal of Forensic Science*. **2013**, 58(5):1330-5.

Yu, J.C.C.; Martin S.; Nasr J.; Stafford K.; Thompson D.; Petrikovics I. LC-MS/MS analysis of 2aminothiazoline-4-carboxylic acid as a forensic biomarker for cyanide poisoning, *World J Methodol.* **2012**, 2(5): 33-41.

Petrikovics, I.; Yu, J.C.C.; Thompson, D.; Jayanna, P.; Logue, B.; Nasr, J.; Bhandar, R.; Baskin, S.; Rockwood, G. Plasma Persistence of 2-Aminothiazoline-4-Carboxylic Acid in Rat System Determined by Liquid Chromatography Tandem Mass Spectrometry. *Journal of Chromatography B* **2012**, 891-892, 81–84.

Petrikovics, I.; Wales, M.; Budai, M.; Yu, J.C.C.; Szilasi, M. Nano-Intercalated Organophosphorus Hydrolyzing Enzymes in Organophosphorus Antagonis. *AAPS PharmSciTech* **2012**, 13(1), 112-117.

Petrikovics, I.; Thompson, D.E.; Rockwood, G.A.; Logue, B.A.; Martin, S.; Jayanna, P.; Yu, J.C.C. Organ-distribution of the metabolite 2-aminothiazoline-4-carboxylic acid in a rat model following cyanide exposure. *Biomarkers* **2011**, 16(8), 686-690.

Yu, J.C.C.; Lai, E.P.C. Review: Molecularly Imprinted Polymers for Ochratoxin A Extraction and Analysis. *Toxins* **2010**, *2(6)*, 1536-1553.

Jackson, R.; Petrikovics, I.; Lai, E.P.C.; Yu, J.C.C. Molecularly imprinted polymer stir bar sorption extraction and electrospray ionization tandem mass spectrometry for determination of 2-aminothiazoline-4-carboxylic acid as a marker for cyanide exposure in forensic urine analysis. *Analytical Methods* **2010**, *2*, 552-557.

Ehmann, R.; Yu, J.C.C. Determination of energization state of xenon high intensity discharge automobile headlights. *Forensic Science Journal* **2009**, *8*, 13-28

Burleson, G. L.; Gonzalez, B.; Simons, K.; Yu, J.C.C. Forensic analysis of a single particle of partially burnt gunpowder by solid phase micro-extraction – gas chromatography-nitrogen phosphorus detector. *Journal of Chromatography A* **2009**, *22*, 4679-4683.

Wei, Y.; Qiu, L.; Yu, J.C.C.; Lai, E.P.C. Molecularly imprinted solid phase extraction in a syringe needle packed with polypyrrole-encapsulated carbon nanotubes for determination of ochratoxin A in red wine. *Food Science and Technology International* **2007**, *13*, 375-380.

Yu, J.C.C.; Hrdina, A.; Mancini, C.; Lai, E.P.C. Molecularly imprinted polypyrrole encapsulated carbon nanotubes in stainless steel frit for micro solid phase extraction of estrogenic compounds. *Journal of Nanoscience and Nanotechnology* **2007**, *7*, 3095–3103.

Yu, J.C.C.; Lai, E.P.C. Determination of ochratoxin A in red wines by multiple pulsed elutions from molecularly imprinted polypyrrole. *Food Chemistry* **2007**, *105*, 301-310.

Lu, T.; Lai, E.P.C.; Yu, J.C.C. Hu, F. Analysis for flavonoids in bee pollens by capillary electrophoresis. *Food Science* (ISSN 1002-6630), **2006**, *27*, 582-587.

Lu, T.; Yu, J.C.C.; Li, Y.; Revesz, E.; Lai, E. P.C. Rapid Analysis for Flavonoids in Propolis by Capillary Electrophoresis, *Food Science* (ISSN 1002-6630), **2006**, *27*, 208-213.

Yu, J.C.C.; Lai, E.P.C. Molecularly imprinted polypyrrole modified carbon nanotubes on stainless steel frit for selective micro solid phase pre-concentration of ochratoxin A. *Reactive & Functional Polymers* **2006**, *66*, 702-711.

Yu, J.C.C.; Krushkova, S.; Lai, E.P.C.; Dabek-Zlotorzynsk, E. Molecularly imprinted polypyrrole modified stainless steel frits for selective solid phase pre-concentration of ochratoxin A. *Analytical Bioanalytical Chemistry* **2005**, *381*, 1534-1540.

Yu, J.C.C.; Lai, E.P.C. Interaction of ochratoxin A with molecularly imprinted polypyrrole film on surface plasmon resonance sensor, *Reactive & Functional Polymers* **2005**, *63*, 171–176.

Yu, J.C.C.; Lai, E.P.C. Polypyrrole modified stainless steel frits for on-line micro solid phase extraction of ochratoxin A. *Analytical Bioanalytical Chemstry* **2005**, *381*, 948–952.

Yu, J.C.C.; Lai, E.P.C.; Sadeghi, S. Surface plasmon resonance sensor for Hg(II) detection by binding interactions with polypyrrole and 2-mercaptobenzothiazole, *Sensors & Actuators B: Chemical* **2004**, *101*, 236-241.

Yu, J.C.C.; Lai, E.P.C. Polypyrrole film on miniaturized surface plasmon resonance sensor for ochratoxin A detection. *Synthetic Metals* **2004**, *143*, 253-258.

Chang, W.T.; Yu, J.C.C.; Wang, C.T.; Tsai, Y.Y. A critical evaluation of spectral library searching for the application of automotive paint database. *Forensic Science Journal* **2003**, *2*, 47-58.

Chang, W.T.; Chen, T.H.; Yu, J.C.C.; Kau, J.Y. Comparison of embedding methods used in examining cross-sections of automotive paints with micro - fourier transform infrared spectroscopy. *Forensic Science Journal* **2002**, *1*, 55-60.

Chang, W.T.; Yu, J.C.C. Analyses of naturally weathered automobile paints for the evaluation of spectral library searching by micro/FTIR. *Police Science Quarterly* **2001**, 32, 149-160.

Chang, W. T.; Giang, Y. S.; Yu, J.C.C. Forensic applications of scanning electron microscopy/ X-ray energy dispersive spectrum (SEM/EDX) on automobile headlight glasses. *Journal of Police Science* **1995**, *26*, 269-282.

## Books

N/A

# Chapters

Buzzini, P.; Yu, J.C.C. General principles and techniques of trace evidence collection, in Forensic Evidence Management: From the Crime Scene to the Courtroom, by CRC Press, **2017**, Chapter 7.

Yu, J.C.C.; Mozayani, A. Medicolegal and forensic factors in cyanide poisoning, in Toxicology of Cyanides and Cyanogens: Experimental, Applied and Clinical Aspects, edited by Alan H. Hall, Gary E. Isom, Gary A. Rockwood. **2015**, Chapter 20, 276-280.

Yu, J.C.C.; Lai, E.P.C. Molecularly imprinted polymer nanomaterials for mycotoxin extraction, in American Chemical Society - Mycotoxin Prevention and Control in Agriculture Symposium Series. **2009**, *1031*, Chapter 19, 277–292.

# Proceedings

Petrikovics, I; Stafford, K; Thompson, D; Jayanna, P; Yu, J. Determining the biomarker cyanide metabolite 2-aminothiazoline-4-carboxylic acid in mice liver after cyanide exposure. *Toxicology Letters* **2010**;196:S295-S296. (Abstracts of the XII International Congress of Toxicology)

Artistic Performance N/A

Artistic Exhibitions N/A

Research Monographs and Technical Reports N/A

**Funded External Grants** 

Development of heated headspace solid phase microextraction-gas chromatography/mass spectrometry for chemical profiling of marijuana, PI, National Institute of Justice. (Funded for 2015-2016) [Competitive, \$166K]

Marijuana Profiling Using Headspace Solid Phase Microextraction Coupled with Gas Chromatography/Mass Spectrometry, NIJ/FSF (National Institute of Justice/Forensic Science Foundation) Forensic Science Student Research Grant, Student Investigator: Tiffany McCann, 2013. (Funded for 2012-2013) [Competitive, \$6K]

The separation of chiral psychedelic amphetamine by molecularly imprinted monolithic polymers, NIJ/FSF (National Institute of Justice/Forensic Science Foundation) Forensic Science Student Research Grant, Student Investigator: Seongshin Gwak, 2010. (Funded for 2010-2011) [Competitive, \$4K]

X-ray fluorescence analysis of human bone elements for the identification of origins, Innov-X Systems Academic & Research Relations Grant Award, co-PI, 2008 [Equipment loan].

Opening the black box of NIBIN: A process and outcome evaluation of the use of NIBIN and its effects on criminal investigations, forensics advisor, funded by NIJ (National Institute of Justice) for 2010-2012) [Competitive, \$341K].

Develop on-line forensic science certification program for high school teachers, co-PI, TEA (Texas Education Agency) grant. (Funded for 2010-2011) [Non-competitive, \$150K].

#### **Peer-Review Presentations/Posters**

Zelbst P.; Yu JCC. The impact of 3D printing technology on the foundational questions in firearm examination, the 2017 Topics in Forensic Science Conference, Harris County Institute of Forensic Science, April 26 - 28, 2017. (Oral Presentation)

Perry L.; Yu JCC. Total vaporization of derivatization reagent for in situ headspace derivatization solid phase microextraction, American Chemical Society National Meeting, April 2-6, 2017, San Francisco, CA. (Poster)

McDaniel A.; Perry L.; Sweet J.; Liu F.; Yu JCC. Detection of marijuana varieties based on heated sample headspace chemical signatures. American Chemical Society National Meeting, April 2-6, 2017, San Francisco, CA. (Oral Presentation)

McDaniel A.; Sweet J.; Yu JCC. A comparison of headspace cannabinoid profiles detected from different structures of dried cannabis inflorescences. the 69th American Academy of Forensic Science Annual Scientific Meeting, Feb 13-18, 2017, New Orleans, LA. (Poster)

Brown A.; Sweet J.; Yu JCC. A rapid quantitative chemical analysis of cannabinoids in seized Cannabis using heated headspace solid-phase microextraction and gas chromatography/mass spectrometry, American Chemical Society National Meeting, March 13-17, 2016, San Diego, CA.

Brown A.; Sweet J.; Yu JCC. Non-destructive sample preparation for cannabinoid profiling in seized marijuana using headspace solid-phase microextraction, American Chemical Society National Meeting, March 13-17, 2016, San Diego, CA.

Winborn J.; Sweet J.; Yu JCC. Differentiation of Seized Marijuana Samples using Automated Headspace Solid-Phase Microextraction Coupled to Gas Chromatograph – Mass spectrometer/

Flame Ionization Detector and Principal Component Analysis, the 68rd American Academy of Forensic Science Annual Scientific Meeting, Feb 22-27, 2016, Las Vegas, NV. (Poster)

Brown A.; Sweet J.; Yu JCC. Quantitation of Major Cannabinoids Found in Seized Marijuana Using Automated Headspace Solid-Phase Microextraction Coupled with Gas Chromatography/Mass Spectrometry, the 68rd American Academy of Forensic Science Annual Scientific Meeting, Feb 22-27, 2016, Las Vegas, NV.

Yu J.C.C. Crime Scene Investigation, Physical Evidence Interpretation, and Chain of Custody: Lessons Learned from a Case Study, INTERNATIONAL SCIENTIFIC CONFERENCE "CRIME SCENE", March 15-16, 2015, Warsaw, Poland. (Invited talk)

Sablatura J.; McDown R.; Yu J.C.C.; Chen L. Fingerprint Replication Utilizing Latent Fingerprints for Conducting Forensic Analysis on Mobile Devices With Biometric Security, the 67rd American Academy of Forensic Science Annual Scientific Meeting, Feb 16-21, 2015, Orlando, FL.

Winborn J.; Hanson M.; Figueroa L.; Konarik A.; James D.; Chen K.; Dassau T.; Sweet J.; Yu J.C.C. Analysis of Cannabinoids Found in Seized Marijuana Using Automated Headspace Solid-Phase Microextraction Coupled With Gas Chromatography/ Mass Spectrometry, the 67rd American Academy of Forensic Science Annual Scientific Meeting, Feb 16-21, 2015, Orlando, FL.

McCann, T.; Yu, J.C.C. Optimization of Headspace Solid Phase Microextraction Coupled With Gas Chromatography/Mass Spectrometry for Marijuana Profiling, The 66rd American Academy of Forensic Science Annual Scientific Meeting, Feb 17-22, 2014, Seattle, WA.

Shih, W.-C.; Gao, Y.; Ji, Q.; Yu, J. Detection of Organic Gunshot Residues by Surface-Enhanced Raman Scattering Spectroscopy, Explosive Sensing: From Homeland Security to Military Applications session, Pittcon conference March 13, 2012, Orlando, FL.

Gao Y.; Gwak S.; Yu J.C.C. Preparation of molecularly imprinted monolithic polymers as the stationary phase for liquid chromatography. The 64rd American Academy of Forensic Science Annual Scientific Meeting, Feb 20-25, 2012, Atlanta, GA.

Harre N.M.; Pipkin, A.J.; Yu, J.C.C.; Anderson, C.C. Extraction of methamphetamine from postmortem blood samples by molecularly imprinted polymers for selective solid phase extraction. The 64rd American Academy of Forensic Science Annual Scientific Meeting, Feb 20-25, 2012, Atlanta, GA.

Dela Cruz D.A.; Heartsill, C. Yu, J.C.C. A comparison of alprazolam levels in blood and urine. The 64rd American Academy of Forensic Science Annual Scientific Meeting, Feb 20-25, 2012, Atlanta, GA.

Foster, M.; Yu, J.C.C; Stein, D. The use of infrared imaging to facilitate fired cartridge case and bullet comparisons, The 63rd American Academy of Forensic Science Annual Scientific Meeting, Feb 21-26, 2011, Chicago, IL.

Martin, S.; Nasr, J.; Yu, J.C.C.; Petrikovics, I. Study of 2-aminothiazoline-4-carboxylic acid as a biomarker for cyanide exposure by LC-MS/MS analysis. The 63rd American Academy of Forensic Science Annual Scientific Meeting, Feb 21-26, 2011, Chicago, IL.

Loeffler, P.A. (presenter); Williams, D.L.; Yu, J.C.C. Forensics chemistry: Its impact on the education of recent generations of undergraduate students, CWCS Forensic Science Symposium 2010, Fall National American Chemistry Society (ACS) Meeting, Aug 22-26, 2010, Boston, MA.

Yu, J.C.C.; Petrickovics, I.; Jackson, R.; Stafford, K. Analytical method development for determining the biomarker cyanide metabolite 2-aminothiazoline-4-carboxylic acid in mice liver after cyanide exposure. The Society of Toxicology Annual Meeting, March 7–11, 2010, Salt Lake City, UT.

Stafford, K.; Jackson, R.; Simons, K.; Yu, J.C.C.; Petrickovics, I. Analytical method development for determining the biomarker, 2-aminothiazoline-4-carboxylic acid (ATCA), in mice liver after cyanide exposure, The 62nd American Academy of Forensic Science Annual Scientific Meeting, Feb 22-27, 2010, Seattle, WA.

Kelly, J.D.; Yu, J.C.C. Analysis of non-toxic ammunition by double shot pyrolysis gas chromatography/mass spectroscopy (DY-PY GC/MS), The 62nd American Academy of Forensic Science Annual Scientific Meeting, Feb 22-27, 2010, Seattle, WA.

Stafford, K.; Jackson, R.; Yu, J.C.C. Petrikovics, I. Analytical method development for determining the biomarker, 2-aminothiazoline-4-carboxylic acid (ATCA), in mice liver after cyanide exposure. The 65th Southwest Regional Meeting of the American Chemical Society, Nov. 5, 2009.

Jackson, R.; Petrickovics, I. Yu, J.C.C. Molecular imprinted polymer stir bar sorption extraction and electrospray ionization tandem mass spectrometry for the analysis of 2-aminothiazoline-4-carboxylic acid, The 2009 Society of Toxicology Annual Meeting, Baltimore, Maryland, March 15–19, 2009

Yu, J.C.C.; Gonzalez, B. Detection of molecular markers for the identification of gunshot Residues by solid phase micro extraction - gas chromatography/nitrogen phosphorous detector (SPME-GC/NPD), The 61st Anniversary Meeting, American Academy of Forensic Science, Feb 22-27, 2009.

Gonzalez, B.; Yu, J.C.C. Optimization of solid phase micro extraction – gas chromatography/nitrogen phosphorous detector for the detection of methyl centralite and ethyl centralite from gun shot residues. The 61st Anniversary Meeting, American Academy of Forensic Science, Feb 22-27, 2009.

Winslett, S. Yu, J.C.C. A hollow fiber assisted ionic liquid surface for stir bar sorptive extraction. The 64th Southwest Regional Meeting of the American Chemical Society, Oct. 1-4, 2008.

Reyna, R.; Gonzalez, B.; Yu, J.C.C. Discovery of molecular markers for gunshot residues by solid phase micro extraction- gas chromatography/nitrogen phosphorous detector (SPME-GC/NPD), The 64th Southwest Regional Meeting of the American Chemical Society, Oct. 1-4, 2008.

Spurlin J.; Chapela P.; Petrikovics, I. Yu, J.C.C. Encapsulation efficiency of organophosphorous hydrolase in lecithin liposomes as determined by capillary electrophoresis. The 64th Southwest Regional Meeting of the American Chemical Society, Oct. 1-4, 2008.

Burleson, G.; Yu, J.C.C. Forensic analysis of single gun powder particle by SPME-GC/NPD (solid phase micro-extraction – gas chromatography/nitrogen phosphorus detector), 235th ACS National Meeting and Exposition, April 6-10, 2008

Yu, J.C.C.; Gross, S. A novel capillary electrophoresis immunoassay for ochratoxin detection using molecular probe of quantum dot bioconjugate, The 63<sup>rd</sup> Southwest Regional Meeting of the American Chemical Society, November 7, 2007

Gross, S.; Yu, J.C.C. Carbodiimide-mediated reaction with self-assembly nano-structured quantum dots for latent fingerprint development. The 63<sup>rd</sup> Southwest Regional Meeting of the American Chemical Society, November 5, 2007.

Lloyd, S.; Gross, S.; Yu, J.C.C. Latent fingerprint development using funcational quantum dots. The 92nd International Association of Identification Annual Meeting, San Diego, July 24, 2007.

Yu, J.C.C.; Krushkova, S.; Lai, E.P.C.; Dabek-Zlotorzynsk, E. Molecularly imprinted polypyrrole modified stainless steel frits for selective micro solid phase preconcentration, 28th International Symposium on Capillary Chromatography and Electrophoresis, Las Vegas, USA, 22-25, May, 2005.

## Work or Professional Experience

2012-present, Associate Professor of Forensic Science, College of Criminal Justice, Sam Houston State University

2008-2012, Assistant Professor of Forensic Science, College of Criminal Justice, Sam Houston State University

2006-2008, Assistant Professor of Chemistry, College of Arts and Science, Sam Houston State University

2006/02-2006/07, Postdoctoral Research Fellow, Health Canada

1999–2002, Forensic scientist, Forensic Science Center, Taipei, Taiwan

1994–1999, Forensic technician, Forensic Science Center, Taipei, Taiwan

#### **Honors and Awards**

N/A

# **Other Competencies**

N/A