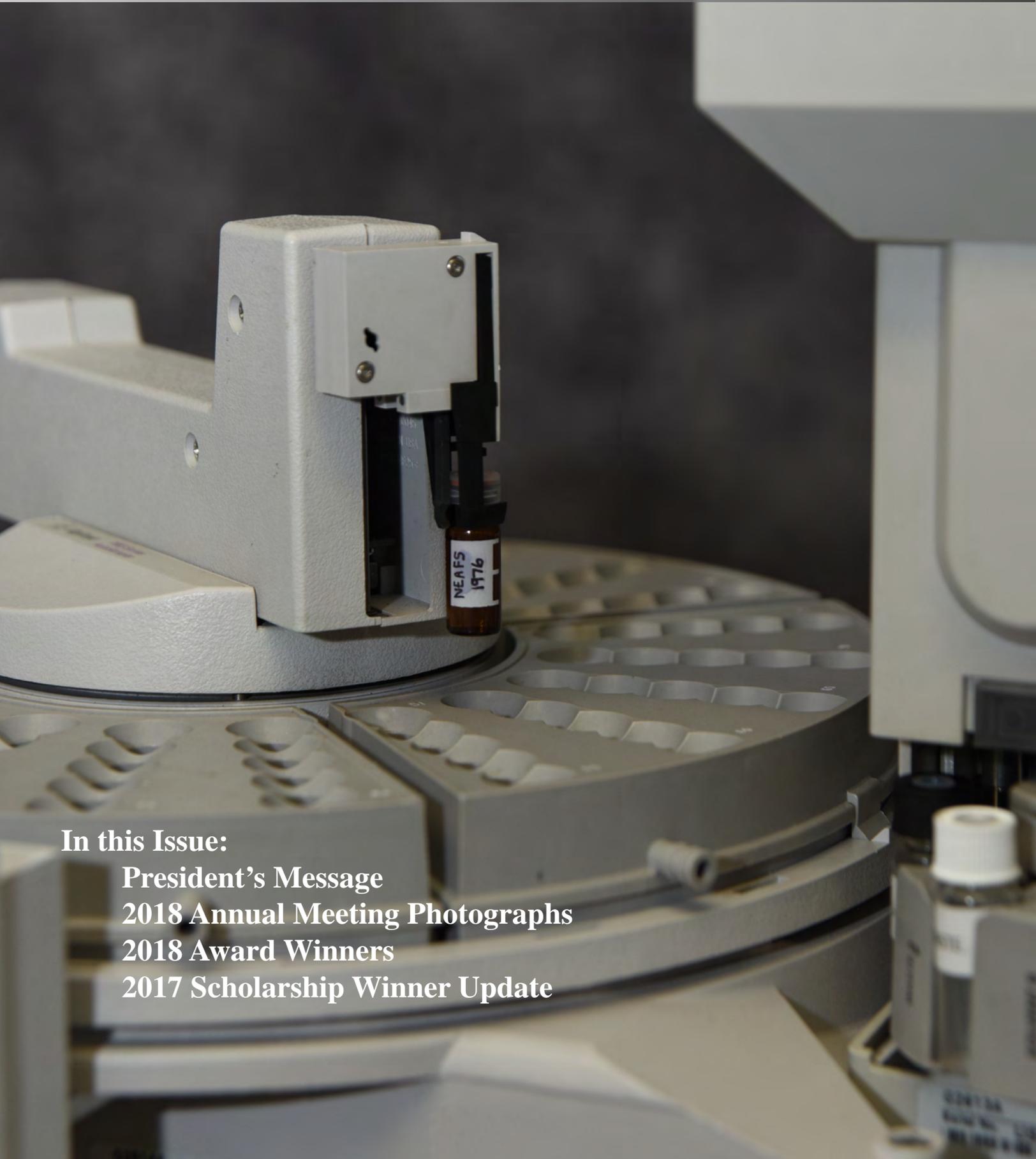


NEAFS Newsletter

Volume 43, Issue

Winter 2018



In this Issue:

- President's Message**
- 2018 Annual Meeting Photographs**
- 2018 Award Winners**
- 2017 Scholarship Winner Update**

Board of Directors 2018

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Director: Elizabeth Duval

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Director: Adam Hall

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MEET THE 2018 BOD

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NJ State Police Office of Forensic Sciences, Central Regional Laboratory
Forensic Scientist II in the trace evidence unit since October 2003
BS in Criminal Justice - Shippensburg University
BS in Forensic Chemistry - West Chester University

Tiffany Ribadeneyra, F-ABC - President-Elect

Nassau County Office of the Medical Examiner, NY
Forensic Scientist IV in the Chemistry Section since May 2011
Westchester County, NY Forensic Laboratory from Dec. 2005 to May 2011
BS in Chemistry-Fordham University
MS in Criminal Justice-LIU Post

Maria Tsocanos - Treasurer

Westchester County Forensic Laboratory, NY
Forensic Scientist in the Forensic Biology section
BS in Forensic Science - John Jay College of Criminal Justice

Angela Violotti – Secretary

Connecticut Forensic Lab, Connecticut Department of Emergency Services and Public Protection, Division of Scientific Services
Forensic Science Examiner 1 for approximately 4.5 years
BS in Biochemistry – Cedar Crest College
MS in Forensic Science – Cedar Crest College

Adam Hall Ph.D., D-ABC – Director

Director, Mass Spectrometry Facility-Barnett Institute of Chemical and Biological Analysis-Northeastern University, Boston, MA 2014- Present
Instructor of Forensic Chemistry, Boston University School of Medicine, 2007-2014
Forensic Chemist II, MA State Police Crime Laboratory, 2002-2007
BA in Chemistry - Stonehill College
MS in Chemistry - Northeastern University
PhD in Analytical Chemistry - Northeastern University

Sheauling Kastor - Director

Massachusetts State Police Crime Laboratory
Forensic Scientist II in DNA and Crime Scene Response Units since January 2009
BS in Biology - Fairfield University
MS in Forensic Science - University of New Haven

Elizabeth Duval - Director

Massachusetts State Police Crime Laboratory
Forensic Scientist II, 2009-present
BS Genetics, Texas A&M University
BS in Forensic Science, University of New Haven

MX908

Rapidly Detect 2000+ Fentanyls

Fast reliable detection of street fentanyl has been a challenge for field technologies, until now. The MX908 makes it easy by taking field-based identification to the next level with Drug Hunter Mode.

Drug Hunter Mode sets MX908 apart from library-based technologies. This Mode enables rapid alarm to the presence of over 2,000 fentanyl variants even in the presence of both cutting and cloaking agents.



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908devices.com/application/fentanyl

CASE STUDY

Analysis Comparison of Street Fentanyl

The opioid abuse crisis is rapidly spreading throughout communities across the United States and the rest of the world. In 2015 alone, opioids were involved in the death of 33,091 US citizens – a number that has quadrupled since 1999¹. In 2016, the Center for Disease Control (CDC) cited an additional increase of 28%, linking opioid abuse to more than 42,000 fatalities². At 100 to 10,000 times the strength of morphine, fentanyl is typically used in small quantities and is often combined with other street drugs (such as heroine, cocaine and MDMA) or benign cutting agents to deliver the drug into a person's system. Even trace amounts that are invisible by the human eye can cause an overdose.

This crisis has first responders on alert and has unleashed a call to action for technology manufacturers to develop powerful solutions to detect and identify trace quantities of this mighty drug. Here we outline a real-world scenario that demonstrates the detection capabilities of several go-to first responder tools.

The Situation

During an incident at a suburban residence, a local HazMat team seized a small sample of what appeared to be street fentanyl. After an independent laboratory verified the presence of fentanyl, we were asked to participate in a technology comparison. We evaluated the effectiveness of three portable techniques: Raman, FT-IR, and high pressure mass spectrometry™ (HPMS).

Analysis by Raman

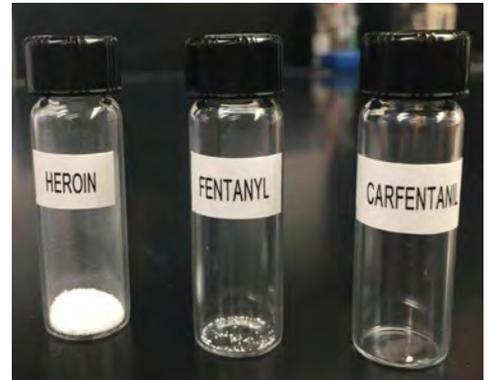
Raman spectroscopy is a go-to tool because of its high selectivity and ability to differentiate between 10,000+ different compounds through sealed packaging. However, Raman is primarily used as a bulk technique. This means a visible amount of sample is required to make the measurement and it is rarely suitable for detecting trace-level concentrations. Here, the Raman analysis failed as fluorescence interfered with the measurement and the estimated run time was upwards of 4 hours.

Analysis by FT-IR

Similar to Raman, FT-IR is more suitable for bulk material identification and is also highly selective. Here, FT-IR was only able to detect a carbohydrate, which serves as a cutting agent used to dilute highly toxic opioids. No fentanyl was detected using this technique, despite the fact that the FT-IR instrument was equipped with a library of fentanyl and its related analogues.

Analysis by HPMS

HPMS is a novel technology that powers the MX908. This analytical technique is both highly selective and sensitive, making it the technology of choice for a wide range of chemical threats. Here, a sample estimated to be in the low nanograms was measured on the MX908 using its Drug Hunter mode. The device was clearly able to identify fentanyl in the presence of the cutting agent in less than 60 seconds.



MX908's new Drug Hunter mode unlocks additional resolving power from the device's existing hardware to dramatically upgrade selectivity, which provides first responders with optimal detection and identification capabilities for a subset of the device's target list, including a broad range of fentanyls, opioids, and amphetamines.

CASE STUDY

Analysis Comparison of Street Fentanyl

About MX908

MX908™ leverages high-pressure mass spectrometry to deliver dramatically enhanced sensitivity and broader threat category coverage. This down-range tool increases mission support with unmatched flexibility and trace detection power for responders in priority drug, chemical, explosive and high-threat hazmat scenarios. MX908 lightens the overall technology burden by displacing other less selective technologies from the response toolkit.

About Mission Modes

The MX908's Mission Modes are specialized hardware and software configurations for enhanced operational performance under specified mission objectives. Drug Hunter, which was used in this analysis, is a mission mode for the detection and identification of drugs and pharmaceutical-based agents (PBAs) including fentanyl and fentanyl-analogues, heroin, cocaine, and amphetamines. When Drug Hunter is selected, the MX908 hardware reconfigures to provide optimal efficiency and mass spectral selectivity using sequential fragmentation to selectively create and confirm the expected mass fragments of the drug targets of interest.

“The opioid abuse crisis is rapidly spreading throughout communities across the country. In 2015 alone, opioids were involved in the death of 33,091 US citizens – a number that has quadrupled since 1999¹.”

The abuse of fentanyl and other opioids is a crisis within communities all across the country. Due to their potency, fentanyls can be present at very low levels and still pose a severe hazard to first responders and civilians alike.

As demonstrated in this case study, Raman and FTIR are not practical technologies for the detection of trace substances. While great for bulk material identification, they cannot detect minor mixture components below the 5-10% level.

Here, HPMS demonstrated the capability to positively identify a trace amount of fentanyl in less than 60-seconds. The sensitivity of MX908 enables the identification of fentanyl and its analogues down to 0.1%, even in a complex mixture.

REFERENCES: 1. <https://www.cdc.gov/drugoverdose/epidemic/index.html>. 2. https://www.cdc.gov/nchs/data/databriefs/db294_table.pdf#page=4

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MX908 Mission Modes enhance performance using specialized software configurations to optimize operational performance for mission objectives.

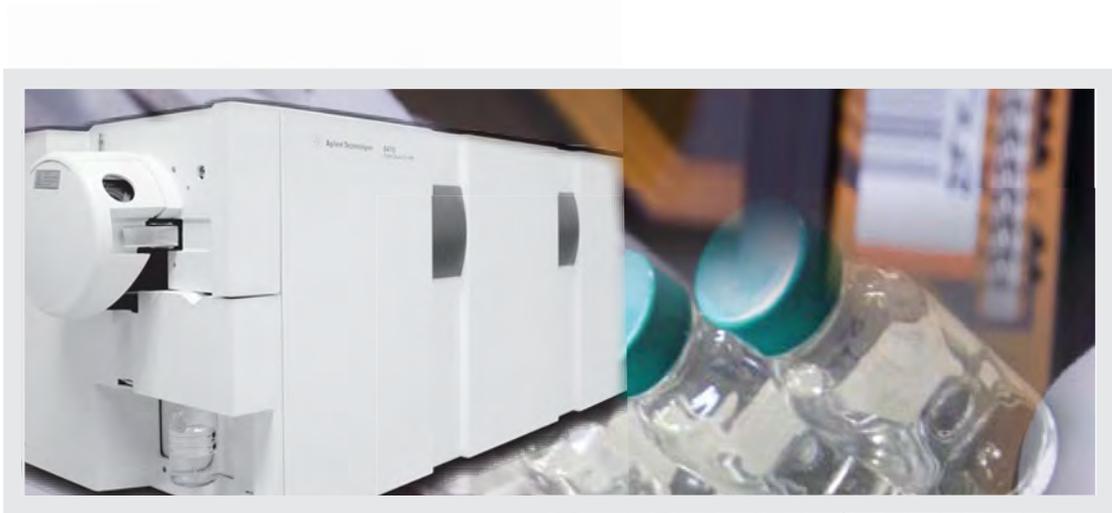
Drug Hunter: is a mission mode for the detection of drugs and pharmaceutical-based agents (PBAs) such as: fentanyl and fentanyl-analogues, along with other high priority drugs-of-abuse.

Explosives Hunter: is a mission mode for the detection of priority threats from military and commercial grade explosives, to homemade energetics and relevant precursors.

CWA Hunter: is a mission mode for the detection of priority chemical warfare agents, including real-time vapor quantification.



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President's Message

I begin this message in a similar fashion as many of my predecessors, by expressing my disbelief at how quickly my term as President has passed! I'm very grateful to have had the honor to serve as President of this amazing organization, and it will always be one of the highlights of my career. I was fortunate to have an incredibly dedicated and hardworking Board of Directors and Staff, who made my job easy. Thank you all for your support, guidance and dedication to this organization!

I'd like to take this opportunity to once again congratulate Tiffany Ribadeneyra and committee on a job well done in planning this year's annual meeting. It was a rousing success, and with record-breaking attendance it was clear that your hard work paid off! Some of the highlights included the presentation of the Meritorious Service award to Chris Chany, as well as the membership voting to elevate Dr. John Reffner to Life Member status. Congratulations, gentlemen, on these well-deserved honors!

I may be a bit biased here, (ok, a lot biased) but I believe that NEAFS is one of the best Forensic Science organizations in the country. As Board members, we continually strive to ensure that NEAFS provides as many benefits and opportunities to its members as possible. Unfortunately, there are still many members who aren't aware of all that NEAFS has to offer. As my last "official" act as President, I'd like to remind you what your small investment of \$50 a year gets you:

Financial Benefits

- Low annual dues (\$50)
- Affordable annual meetings (\$130 early registration fee for members)
 - Attendees at NEAFS meetings learn about the latest in research and method development. You can also hear about an interesting case or two or three. In addition, changes in professional issues such as accreditation, quality assurance, and oversight are also often discussed. NEAFS meetings also offer the opportunity for continuing education through workshops. NEAFS makes a concerted effort to provide training in a variety of areas ensuring that as many forensic science professionals as possible can take advantage of the opportunity. Attendees also get to interact with representatives from many of the vendors that furnish instrumentation, consumables, and other services used by the forensic science community. The meeting provides an opportunity to learn about state-of-the-art technology that offers the potential to improve the discipline.
- Full member meeting lottery: At the annual meeting, a member is selected at random to win FREE registration and hotel costs for the following year's meeting!
- Free/Reduced cost workshops: NEAFS offers several workshops throughout the year that are often free to members or at a lower cost.
- Training Reimbursement: Members are eligible to receive **up to \$400** towards training, workshop or non-NEAFS meeting registration and travel expenses.
- Certification Reimbursement: Members who pass the ABC or IAI certification exam will be reimbursed for the sitting fee.
- FREE annual meeting registration for any member or active applicant who presents a technical talk or poster

Educational Opportunities

- Annual Meeting
- NEAFS-sponsored workshops
 - NEAFS is committed to the professional development of its members. In addition to workshops held at the annual meeting, NEAFS often organizes and sponsors workshops during the calendar year at locations throughout the northeast. NEAFS will subsidize members to attend these workshops reducing the amount of out of pocket expenses required to attend the workshop.
- Networking

Leadership/Service Opportunities

- Board of Director's positions
- Committee and Staff positions
- Annual meeting session chairs
- Visiting Scientist Program:
 - Any private or public forensic science laboratory in the NEAFS geographical area needing technical, scientific, or training assistance may apply to the NEAFS Visiting Scientist Program. Upon request, NEAFS will make a good faith effort to find a qualified individual(s) to come to the laboratory and provide the assistance. The person(s) selected will be agreed upon between NEAFS and the laboratory. NEAFS will subsidize the visit which can be up to 5 working days in duration. Travel logistics will be arranged by the laboratory in conjunction with both the visiting scientist and NEAFS.

Meritorious Service Award

- This award is given to a NEAFS member that has a history of providing commendable service to the forensic science community by serving justice through casework, performing research for the advancement of forensic science, providing training and/or educating forensic scientists and future forensic scientists, and their overall contributions to the NEAFS organization.

Fun and Entertainment

- President's Reception – dinner and dancing at annual meetings
- Murder Mystery Banquet (2015); Trivia night (2016); 80's night (2017)
- Lifelong friends and invaluable networking

If you ask me, that \$50 is a pretty good investment! Information about all of these programs and more can be found on our website (www.neafs.org). I encourage you to visit the website often, as new opportunities and information are frequently added.

The next Board of Directors meeting will be held on January 26th, 2019 under the leadership of incoming President Tiffany Ribadeneyra. Having worked closely with Tiffany over the past several years, I know that NEAFS is in extremely capable hands!

Thank you again for the opportunity to serve as your President. The lessons I've learned and the friendships I've made along the way are invaluable, and I will always cherish this experience. I wish you all a Happy and Healthy New Year!

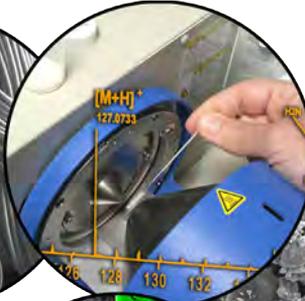
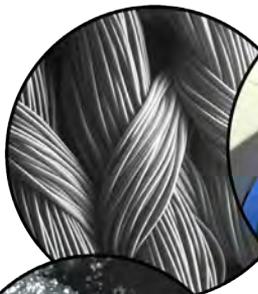
Fondly,

Melissa Balogh
2018 NEAFS President

Fast Investigation

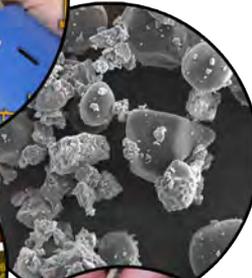
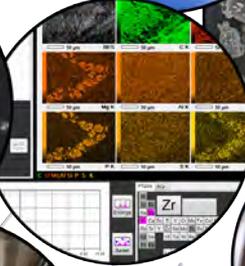
Real-time Analysis ▶ High Throughput Imaging

Hair, fibers, inks



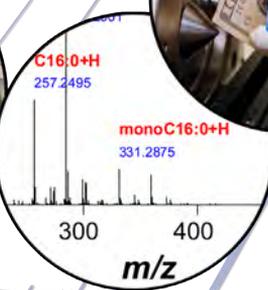
Accident reconstruction

Duct tapes



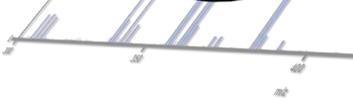
Drugs

Gunshot residue



Trace evidence

Powders, explosives



Plant materials

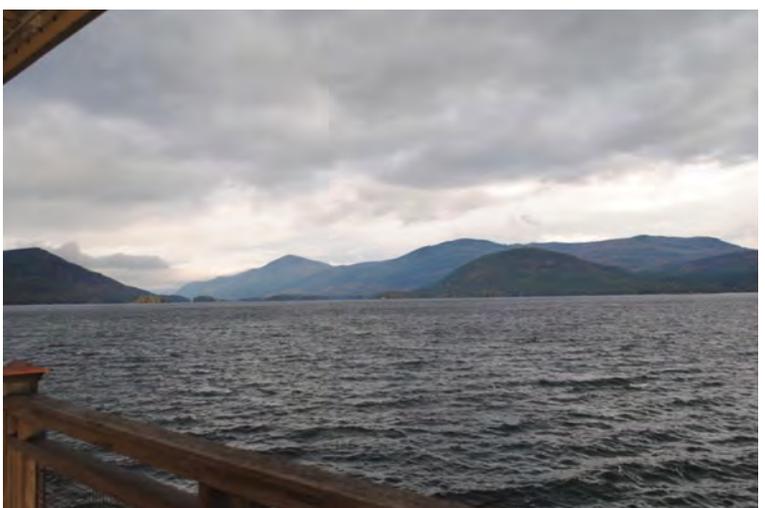
Preserve the Evidence

High-resolution Scanning Electron Microscope with large sample chamber

Direct analysis time-of-flight Mass Spectrometer



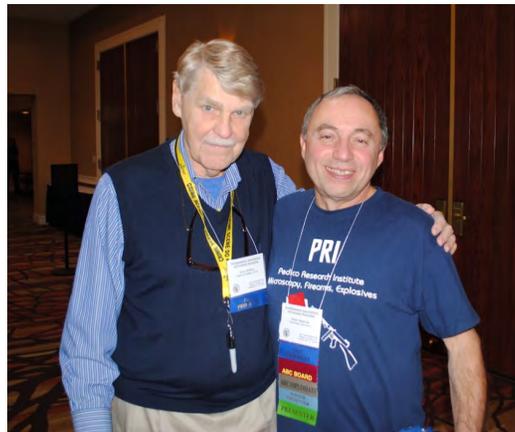
*Northeastern Association of Forensic Scientists 44th Annual Meeting
The Sagamore Resort on Lake George, Bolton Landing, New York
October 23, 2018 – October 27, 2018*



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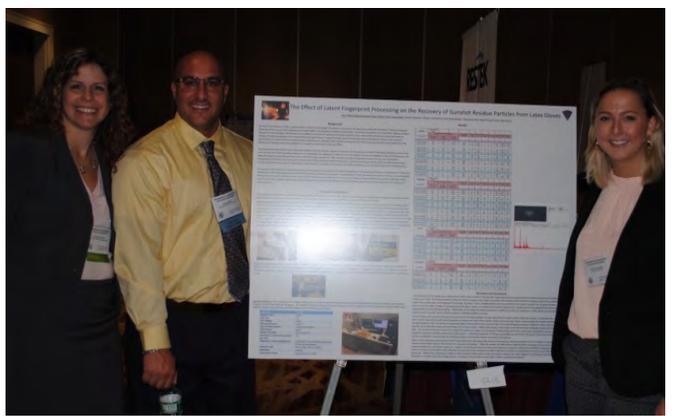
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For questions, additional information or to volunteer please contact
Maria Tsocanos at: treasurer@neafs.org

2019 ANNUAL MEETING

Marriott
LANCASTER
AT PENN SQUARE

NOVEMBER 12 – 16, 2019



2019 NEAFS Board of Directors and Staff

The Nominating Committee recommended the following slate of officers to the Board of Directors and an announcement was made to the Membership at the Annual Business Meeting on October 25, 2018. No additional nominations were received. The terms of office are January 1 through December 31.

President

Tiffany Ribadeneyra

President-Elect/Program Chair

Maria Tsocanos

Secretary

Angela Vialotti

Treasurer

Adam Hall

Directors

Elizabeth Duval, Stephanie Minero, Alanna Laureano

Past President

Melissa Balogh

Awards Chairperson

Danielle Malone

Certification Chairperson

Peter Diaczuk

Corporate Liaison Chairperson

Sarah Roseman

Education Chairperson

Sandra Haddad

Ethics Chairperson

Erica Nadeau

Executive Secretary

Matthew Marino

Membership Chairperson

Anisha Paul

Dues

Joseph Phillips, Angelina Pollen

Social Media Coordinator/Merchandise Chairperson

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LEAP

Bridging the gap

The goal of the Laboratories and Educators Alliance Program (LEAP) is to facilitate collaborative research between academia and forensic science laboratories. This joint effort between the American Society of Crime Lab Directors (ASCLD) and the Council of Forensic Science Educators (COFSE) identifies forensic science needs and provides a platform for laboratories, researchers, and students to seek projects aligning with their mutual research capabilities.

Interested in seeing the participating LEAP labs and universities, please visit: <http://j.mp/2wa5ggP> or click the map.



If your lab is interested in signing-up for LEAP, please visit:
<https://asclcd.org/wp-content/uploads/2018/01/LEAP-Lab-Sign-up-Form.pdf>

If your university is interested in signing-up for LEAP, please visit:
<https://asclcd.org/wp-content/uploads/2018/01/LEAP-University-Sign-up-Form.pdf>

For more LEAP information or for additional information about the ASCLD Forensic Research Committee, please visit:
<http://www.asclcd.org/forensic-research-committee/>





The goal of the Laboratories and Educators Alliance Program (LEAP) is to facilitate collaborative research between academia and forensic science laboratories. This joint effort between the American Society of Crime Lab Directors (ASCLD) and the Council of Forensic Science Educators (COFSE) identifies forensic science needs and provides a platform for laboratories, researchers, and students to seek projects aligning with their mutual research capabilities.

Laboratories

Expands the research climate within the laboratory, leading to meaningful contributions to forensic science practices.

Provides educational opportunities, such as conference presentations and guest lectures.

Supports the laboratory through hosting student interns to assist in validation and evaluation projects.

Facilitates the connection between the laboratory and university programs, potentially assisting with future hiring actions and research needs.

Academia

Promotes impactful research by providing a list of forensic science needs and research interests that can lead to future collaborations.

Enriches the knowledge base of university faculty with limited or no prior forensic laboratory experience.

Enhances academic achievements through the valuable internship experiences provided to students.

Streamlines vital connections and collaborations between universities and forensic science laboratories as required for accreditation.

Value to participating organizations



For a list of the ASCLD Research Priorities, please visit: <http://www.asclد.org/wp-content/uploads/2017/08/ASCLD-FRC-Research-Topics-with-Board-Priorities.pdf>

For more LEAP information or for additional information about the ASCLD Forensic Research Committee, please visit: <http://www.asclد.org/forensic-research-committee/>



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2018 Meritorious Service Award Nomination Letter



This member received a BS and MS degree from John Jay College of Criminal Justice.

In 1979, this member applied to be upgraded from a student member of NEAFS to a Provisional member and then in June of 1981, he applied for an upgrade to a Regular member. He participated pretty much immediately within NEAFS. In 1983, he presented at the 9th NEAFS Annual Meeting with Vincent Crispino and

Peter DeForest, while working in a forensic laboratory. Their presentation was titled “Improving the Resolution and Sensitivity of Dynamic Headspace Analysis of Arson samples using a Cryogenic Focuser and small Bore Capillary Column.” This member served as the moderator of the Criminalistics session at the 14th Annual NEAFS meeting in 1988.

When a position opened at the Westchester County Forensic Lab in Valhalla, NY he applied and received this position and became the fourth forensic scientist working in the lab. He then remained in this position for 30 years. This lab has now grown tremendously with its own building and many more employees. Approximately ten years ago, Lt. Peter Pizzola retired as the Commanding Officer of the Yonkers Police Department and this member assumed the role as the Director of the Yonkers lab and remained there until approximately 2013/2016. This member then “retired” and moved.

You have seen this member serving as the recruiter for the Business Meetings before we offered free lunch in order to reach a quorum – and probably bribed with a drink ticket to attend. You have also seen him collecting tickets with George Chin at the Annual Luncheon as well as yesterday and today and there is no way you would get past him without a ticket! Even when I was President-elect and President, I had to hand in my ticket in order to get past him. This member has done this for years without hesitation or being asked.

He has served as a chair of the Kirk Cup which is now called the George W. Chin Cup College Bowl as well as serving as the chair of the Student Forum.

This member of NEAFS holds the record of attending the most NEAFS meetings – only missing approximately two meetings since 1976. This is simply amazing. This shows how much this member is dedicated to the field of forensic science as well as the NEAFS organization. When I said he moved, he actually moved to Austin, TX to work as a Forensic Scientist IV for the TX Dept of Public Safety but still continues to fly up to the northeast to attend and participate in the annual meetings as well as maintain his membership.

He has always greeted me with a smile and a hug every year. His service and dedication to NEAFS is simply amazing and it is very much appreciated.

It is with great honor and pleasure to nominate Member #232, Mr. Christopher P. Chany as the 2018 recipient of the Meritorious Service Award!!

Beth Saucier Goodspeed





Northeastern Association of Forensic Scientists Meritorious Service Award Nomination Form

The Northeastern Association of Forensic Scientists is accepting nominations for the Meritorious Service Award.

This award is given to a NEAFS member that has a history of providing commendable service to the forensic science community by serving justice through casework, performing research advancing forensic science, training and educating forensic scientists and future forensic scientists, and overall contributions to the NEAFS organization. The nominee must have held the status of Regular Member within NEAFS for at least 10 years to be considered.

In addition to this form, a letter of recommendation outlining the nominee's contributions must be emailed to awards@neafs.org. All nominations must be received by September 1st. The winner of the NEAFS Meritorious Service Award will be announced during the annual meeting.

Nominator

First Name:

Last Name:

Address:

Affiliation:

NEAFS Membership Number:

Phone Number:

Email Address:

Nominee

First Name:

Last Name:

Address:

Affiliation:

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Carol De Forest Research Grant Winner – Gabriella Smith (Cedar Crest College)



Ever since she graduated from high school, Gabriella always knew she wanted to be a forensic scientist for the Pennsylvania State Police, but she never realized the journey that these goals would lead her on. Gabriella began her education in another state far from home and felt extremely out of her comfort zone. Overwhelmed and homesick, she soon transferred to a community college in her hometown to save money until she ultimately found her way to Cedar Crest College. With her dreams of becoming a forensic scientist pushing her forward,

Gabriella completed her associate's degree in less than two years and quickly transferred to Cedar Crest. During her time at Cedar Crest, Gabriella often was pushed outside of her comfort zone at internships or in class during moot court testimonies, but this time, rather than run away, she chose to push forward. She knew that these experiences would only help her become a better forensic scientist, so she learned to embrace them. After she finally graduated with her bachelor's degrees, Gabriella had a tremendous journey that her dreams had brought her. She had the opportunity to study abroad in Italy to learn the Italian forensic science system and investigation process. Five years ago, she was out of my comfort zone just being in a different state, but now she was lucky enough to travel to a different country to pursue and broaden her education of this field. The trip inspired her to push forward and complete her master's degree in forensic science. Gabriella can honestly say that without her dream of working for the Pennsylvania State Police, she does not know if she would have been so persistent through all of the struggles she faced along the way.

Gabriella's research is extremely timely as novel fentanyl analogs are being synthesized at such a rapid pace. With new fentanyl analogs being synthesized so quickly, it is nearly impossible for toxicology laboratories to create and validate methods in time to detect these drugs in current casework. It is possible that some fentanyl analogs in postmortem blood samples go undetected simply because there are no new methods that are validated to complete such tasks in a timely manner. If her research succeeds, this will be monumental for toxicology laboratories by providing a validated screening and confirmatory method for detection of

fentanyl, norfentanyl, and common fentanyl analogs in one day. If a quick method for detection and confirmation of these compounds in postmortem blood can be validated, this would immensely impact the entire forensic investigation process by decreasing analysis time for toxicological analysis of postmortem blood samples. Being awarded this grant was advantageous as the necessary costs of the many fentanyl standards continue to increase the budget of this research. In addition, this would allow her to attend the NEAFS conference and present this beneficial research to those it can benefit most.

Gabriella is confident that she will be successful in her research based upon the profusion of support she has received throughout the beginning stages of developing this project, not only from her advisor, Dr. Thomas Brettell, but from other colleagues as well. Gabriella has a solid foundation provided to her by her second reader and past Carol De Forest forensic science research grant winner, Chandler Grant, who proved that BioSPME[®] fibers can be successfully used to extract fentanyl (among other opioids) from postmortem blood samples. She also has the pleasure of gracious support from the Lehigh County Coroner's Office, who has agreed to provide postmortem blood samples for her to analyze. Additionally, IonSense Inc., a Massachusetts-based company, has allowed her to use their DART-MS/MS instrument, which is an incredible opportunity. With such unbelievable support from so many trusted individuals, Gabriella believes that her research will be successful and have a significant impact on the forensic science community.

THE ANALYSIS OF FENTANYL AND ITS ANALOGS AND METABOLITES IN POSTMORTEM BLOOD USING BIOCOMPATIBLE SOLID-PHASE MICROEXTRACTION (BIOSPME), AND DIRECT ANALYSIS IN REAL TIME MASS SPECTROMETRY (DART-MS/MS)

Fentanyl, or N-(1-phenethyl-4-piperidyl)-n-phenyl-propanimide, is a synthetic opioid and was first synthesized in 1960 for pharmaceutical use (1). The drug was then introduced into the United States in the 1970s and quickly became a leading analgesic and anesthetic agent (1). In the 1990s, fentanyl was used in a transdermal patch for mild to severe chronic pain relief (2); however, recently there has been an increase in recreational use of fentanyl leading to overdose fatalities. Illicit drug manufacturers are also continually developing new analogs of fentanyl increasing the need for fast, reliable detection methods of these new analogs.

Fentanyl gained in popularity based on three characteristics. First, fentanyl is 50-100 times more potent than morphine. Next, fentanyl has a shorter onset and can be quickly absorbed into the body. Lastly, the physical effects produced by fentanyl are incredibly similar to that of morphine and oxycodone. These drugs induce euphoria and relaxation while also being highly addictive (3). Fentanyl also causes respiratory and central nervous system depression which can ultimately lead to death. Fentanyl can be found alone or mixed with heroin, which has led to an increase in drug-related deaths due to fentanyl in the United States.

In 2016, approximately 13 people died of a drug-related overdose each day in Pennsylvania. In all, 4,642 drug-related overdose deaths were reported by Pennsylvania coroners and medical examiners in 2016. This is noted as a 37% increase from 2015. In 52% of these cases, fentanyl and fentanyl-related substances were identified in decedents, with heroin being the second most frequently identified substance in decedents. This is an increase from 27% in 2015 (4). Fentanyl is currently legal and FDA-approved despite its clearly devastating effects.

More recently in 2014, illicitly manufactured fentanyl (IMF) and fentanyl analogs have been emerging as another significant threat. This drastic increase can be attributed to the ease at which the materials and equipment required to illicitly manufacture fentanyl can be obtained (5). These items can be easily purchased online for a low cost (5). The ease at which IMF and fentanyl analogs can be made only further aggravates the epidemic, adding novel fentanyl analogs to the streets at alarming rates. Some of these analogs, for example acetyl fentanyl, 4-ANPP, furanyl fentanyl, 3-methylfentanyl, 4-fluoro-sobutyrylfentanyl, and cyclopropyl fentanyl, can be up to five times more potent than heroin (3). Due to the potency of these compounds, the risk of overdose is elevated and can easily cause death resulting from respiratory depression (5). Additionally, surviving users could quickly develop a tolerance and dependence to these compounds (5). On March 18th, 2015, the U.S. Drug Enforcement Agency (DEA) responded to this epidemic by declaring IMF and its analogs a public health safety factor (1). Unfortunately, as more and more fentanyl analogs are created it is nearly impossible for laboratories to keep up with development of methodology that could detect these analogs in post-mortem samples. In addition, the increasing opioid epidemic is causing an increase in

casework resulting in a lag in return of toxicology reports, thus the development of more efficient techniques for screening post-mortem samples for fentanyl and its analogs would greatly benefit toxicology laboratories.

A major advancement in sample preparation and analyte extraction came in 1989 with the introduction of solid-phase microextraction (SPME) (6). Some benefits of this new methodology, includes the elimination of extraction solvents as well as fast and simple extractions. SPME is also compatible with separation/detection techniques which are already available in some laboratories. Two of these instruments will be utilized in this study, liquid chromatograph-tandem mass spectrometer (LC-MS/MS) and direct analysis in real time tandem mass spectrometer (DART-MS/MS).

Recently, in-vivo SPME is becoming more prevalent in research as it allows for the direct analysis of biological fluids without removing samples (7). A concern regarding in-vivo SPME is that other components of biological fluids, such as macromolecules, will bind to the SPME fiber in place of the analyte of interest. In order to avoid this, biocompatible SPME (BioSPME[®]) was developed. BioSPME[®] fibers contain a small metal core which contains a coating of either C-18 or mixed mode chemistry all secured by a pipette tip (Fig. 1). Inside the metal core are functionalized silica particles which are embedded in an inert binder (9). The binder will exclude large biomolecules commonly found in biological matrices and allow smaller molecules, such as drug compounds, to penetrate and absorb onto the silica particles in the fiber (9). Due to this novel design, the need for protein precipitation steps is eliminated making BioSPME[®] useful for direct sampling of biological matrices (9). Additionally, these fibers allow for sample concentration and cleanup to occur simultaneously which reduces sample processing, ultimately speeding up the extraction process (9). An additional benefit is that these fibers are compatible with common solvents used in liquid chromatography (9).

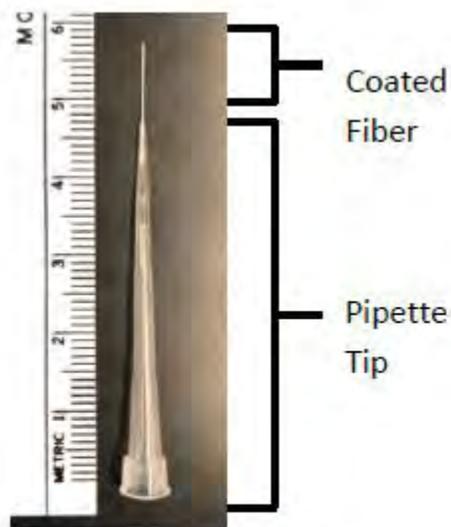


FIG. 1 – BioSPME[®] pipette tippet manufactured by Sigma-Aldrich (8).

Direct analysis in real time-mass spectrometry (DART-MS) techniques will be utilized in this study to develop a screening method for fentanyl, norfentanyl, and six common fentanyl analogs using BioSPME[®] fibers for extraction from postmortem blood. Over the last decade, DART techniques have been slowly introduced into forensic analysis due to the fast, easy, and reliable nature of the analysis process. DART can be used to generate ions from gas, liquid, or solid phase samples with little sample preparation, making it an ideal technique for forensic applications (10). There is a wide range of forensic applications, which benefit from the use of DART. These include the analysis of seized drugs, toxicological samples, explosives, chemical warfare agents, inks, dyes, and condom lubricants in sexual assault cases (10).

In this study, BioSPME[®] fibers in conjunction with DART-MS/MS and LC-MS/MS will be used in order to develop and validate an efficient technique for the screening, identification, and quantitation of fentanyl and its analogs in postmortem blood samples. If successful, this method could be applied in toxicology laboratories in an effort to cut down on analysis time, while also identifying more analogs than previously possible.

Although there are various coatings types for the BioSPME[®] fiber, this study will focus use the C-18 coated fibers as these have been previously established as a reliable method for extraction of fentanyl from postmortem blood at Cedar Crest College. The drugs to be analyzed in this study include: fentanyl, norfentanyl oxalate, acetyl fentanyl, 4-ANPP, furanyl fentanyl HCl, 3-methylfentanyl HCl, 4-fluoro-isobutyrylfentanyl, and cyclopropyl fentanyl HCl. DART-MS/MS will be used as a screening method for detection of the drugs and LC-MS/MS will be used to confirm the presence of the drug. Additionally, the LC-MS/MS will be used as a quantification method to determine the concentration of drug in the biological matrix.

First, a feasibility study will be conducted using the C-18 BioSPME[®] fibers to ensure that they can be used to extract the fentanyl analogs of interest. To do this, different concentrations of drug mixtures containing the fentanyl analogs and metabolite into water and bovine blood. The fibers will then be tested using the screening and confirmatory/quantitative methods of interest.

To begin, the fibers will first be conditioned using a 50% methanol/water solution and then inserted into the biological matrix for approximately 15 minutes to extract the drugs from the sample. The DART-MS/MS can then be used to screen the fibers for the presence of the drugs of interest. For confirmatory analysis using LC-MS/MS, the fibers will be removed from the biological matrix and placed into individual wells containing 0.5% ammonium hydroxide/28% methanol. The well plate will be placed into a shaker to allow the drugs to desorb off the fibers. After the drugs are desorbed off the fiber, the wells will be dried and reconstituted with 40 μ L of acetonitrile in 10% (v/v) methanol/water. Samples will then be analyzed quantitatively using a Shimadzu LC system containing a Restek Ultra[®] C-18 column (50 mm x 2.1 mm, 3 μ m) column attached to an Applied Biosystems Sciex 3200 QTRAP[®] tandem mass spectrometer.

Once these techniques are optimized, the study will then shift to the analysis of postmortem blood samples donated by the Lehigh County Coroner's Office (after receiving consent from the next of kin). The overall purpose of optimizing these methods is to apply the use of these methods to casework as it has the potential to greatly decrease analysis time for toxicology laboratories. Once optimized, this method can be a quick and easy method to screen, identify, and quantitate the presence of fentanyl, norfentanyl, and fentanyl analogs with minimal sample preparation. This study is extremely timely and necessary for the forensic science community given the current opioid epidemic and will have a great impact on the forensic investigation process by simplifying and decreasing analysis times.

*Note: On April 26, 2018, this research project was approved by the Cedar Crest College Institutional Review Board (IRB proposal # 2018-31).

Budget

Product	Vendor	Catalog #	Quantity	Price
4-ANPP	Cerilliant	A-139-0.5ML	1	\$89.00
Acetyl fentanyl	Cerilliant	A-109	1	\$81.50
Fentanyl	Cerilliant	F-013	2	\$32.50 x2
Norfentanyl oxalate	Cerilliant	N-031	1	\$18.50
Furanyl fentanyl HCL	Cerilliant	F-046-0.5ML	1	\$79.00
(+/-)-3methylfentanyl HCL	Cerilliant	M-194-0.5ML	1	\$79.00
4-Fluoro-isobutyrylfentanyl	Cerilliant	F-050-0.5ML	1	\$89.00
Cyclopropyl fentanyl HCl	Cayman	#23603	1	\$97.00
4-ANPP-D5	Cerilliant	A-157	1	\$129.00
Acetyl fentanyl-13C6	Cerilliant	A-110	1	\$91.50
Fentanyl-D5	Cerilliant	F-001	2	\$29.00 x2
Norfentanyl-D5 Oxalate	Cerilliant	N-030	1	\$29.00
Cyclopropyl fentanyl-D5 HCl	Cayman	#22605	1	\$153.00
Biocompatible SPME Fibers: C-18	Supelco	57234-U	2	\$265.00 x2
Restek Ultra C-18 Column	Restek	9174352	1	\$453.00
Bovine Blood in K2Oxalate/NaF (500 mL)	Lampire Biological Laboratories	7200814	1	\$45.00
NEAFS Travel Fees	NA	NA	NA	\$250.00
Overall Total				\$2,336.50

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Carol De Forest Research Grant – Delilah DeWilde (Cedar Crest College)



This research project will contribute a standardized method for confirming fentanyl and fentanyl analogues using GC-MS to the forensic science field. It will be successful because the project has a lot of structure, as it will be done at the Ocean County Sheriffs department forensic laboratory in Toms River, New Jersey along with a well-planned timeline. This final method is to be used for real forensic evidential cases at the Ocean County Sheriffs laboratory. I will have access

to the instrument, which is currently not being used for casework. The stationary phases to be tested have been decided and already purchased. The standards that need to be tested include those reported to be prevalent such as butyryl fentanyl, furanyl fentanyl and fentanyl just to name a few. The variables of the project are well understood, and the next step is preparation of the standards and known samples. There are multiple resources available such as on-site experienced drug analysts to consult, the open communication and direction I have with my primary mentor, Dr. Thomas Brettell, the Director of the laboratory, Dr. Matthew Wood, and the instrument manual should insure success in the project. The experimental design is well prepared and the method developed for screening and identification of fentanyl analogues will make the project a significant success. The protocol that is developed should be very useful for agencies combatting this fentanyl epidemic.

These agencies do not have the time to take away from their caseload to develop and validate such a method. I understand the need for this important research and that is why I should be chosen to receive this grant. I wish to start my career in forensic science by contributing a thorough investigation of the most robust method to identify fentanyl derivatives. I have the self-discipline and work ethic to stay committed to updating my mentor with my project progress and recent

research findings so many parameters are evaluated, and the best separation is investigated. This project will benefit the community by testing alternatively used stationary phases in GC-MS, which may initiate analysis using these findings. The development of this method also serves as a foundation for my career goals.

In the future I would like to work in drug chemistry, doing something similar to this project. My interests include performing analytical chemistry, among other disciplines, to identify unknown controlled substances, from evidentiary seizures, and determine their concentration where appropriate. As a resident of Colorado while obtaining my bachelor's degree I was very impressed by the Colorado Bureau of Investigation agency and I hope to be able to apply there someday or somewhere that encourages keeping up with current and original techniques in the forensic science community and applying it to methods in the field.

Developing a Method for Confirming Fentanyl Analogues via GC-MS

Fentanyl has become an epidemic throughout the Northeast and the entire United States. Among drug related deaths in 2016 66% are due to opioid overdose (1). There are many fentanyl analogues that have been seen in circulation in the United States that have contributed to overdose deaths. In the Commonwealth of Pennsylvania alone, from 2015-2016 acetyl fentanyl has resulted in 41 deaths (2) and butyrfentanyl has resulted in at least 40 deaths (3). Misaildi et al.(4) reported overdose deaths involving ocfentanil and carfentanil being sold as heroin and heroin or cocaine laced with these stronger opiate fentanyl analogues. Seven other fatal overdoses occurred in 2017 after drug users were able to easily order fentanyl via express U.S. mail from online sellers, who avoid detection by anonymity (1). A step in helping this crisis for law enforcement would involve identifying the fentanyl analogue in order to determine its source. This means having a robust method to confirm these different fentanyl derivatives.

Fentanyl is legally distributed as a pain reliever, commonly applicable in transdermal patches, because of its lipophilicity it can easily absorb through the skin. Recreationally, it can be used as a nasal spray, which absorbs mainly in the lungs, or as a powder, which can be mixed into other drugs. Commonly fentanyl is mixed with heroin, marijuana, and cocaine (1, 3). The opioid fentanyl is from the phenylpiperdines class and works much like morphine as a mu-opioid receptor agonist. Fentanyl is around 50 more times potent than heroin and 100 more times than morphine. Fentanyl derivatives have varying potency but much like fentanyl are commonly more potent than heroin or morphine. Fentanyl and fentanyl analogues induce similar effects to heroin, euphoria and relaxation (5), and therefore are able to be used to adulterate illicit drugs such as cocaine and heroin. Drug users are motivated to adulterate these illicit substances because carfentanil and ocfentanil are more potent than heroin and therefore cheaper to distribute because less amount of drug has to be smuggled into the country (4). Many abusers who seek medical attention report they used heroin and show symptoms similar to heroin overdose but in fact they unknowingly used acetyl fentanyl (5). Hikin et al. (6) reported that many heroin overdose deaths that were associated with fentanyl did not include analytical confirmation, so it is possible that many of these cases were related to fentanyl analogues and not fentanyl itself. Katselou et al. (5) reports that acetyl fentanyl abuse cannot be accurately estimated since forensic toxicology labs do not routinely test for it. Lozier et al. (7) reported that GC-MS confirmatory testing can be expensive so many labs do not confirm positive results from ELISA results.

The lack of confirmatory testing for fentanyl is concerning because many labs use the enzyme-linked immunosorbent assay (ELISA) kits to presumptively screen for drugs, which screens for fentanyl and is not capable of distinguishing between fentanyl and other fentanyl analogues (2-3,5,7-10). It is also known to have cross-reactivity for acetyl fentanyl and other fentanyl

analogues (2, 5, 7-9). So the prevalence of certain fentanyl analogues is not exactly known. A confirmatory method that addresses the different fentanyl analogue can quickly contribute information to law enforcement about the case. Although there are reports of using LC-MS/MS to confirm fentanyl and their derivatives (4-5, 11-12) many labs are restricted by their instrumentation available and outsourcing can be expensive so research for a confirmatory method with GC-MS is needed. GC-MS has been used to characterize fentanyl analogues such as 4-fluorobutyrfentanyl, (2R, 4S)- and (2R,4R)-2-methylfentanyl from cis- and trans-3-methylfentanyl (10,13). GC-MS has also been used to screen for and confirm the presence of fentanyl analogues already in some labs (2, 5, 7-9, 12). However, a standardized GC-MS method that includes the most prevalent fentanyl analogues is still lacking in the field. A foundation for analyzing fentanyl analogues will help standardize the way fentanyl analogues are examined and greatly assist in the identification of new fentanyl analogues in evidential seizures.

In this project GC-MS will be used to separate and resolve fentanyl and fentanyl analogues from mixtures. This project will evaluate several stationary phases and their ability to separate these analogues in an attempt to find the optimum conditions to analyze these compounds. The vital part of the project will be optimizing chromatographic conditions to better resolve fentanyl and its analogues. In addition, it will use equipment that is set up to analyze a sample on multiple stationary phases at one time providing the analyst with valuable additional information about the sample and aid in the identification of the drug. The project will involve analyzing as many fentanyl analogues as possible (there are over 50 standards available commercially) by injecting the drug standards multiple times (at least in triplicate) on multiple columns with different stationary phases. The instrument will be configured with two gas chromatographic columns. One column will take the sample to the mass spectrometer and the other one to a flame-ionization detector. Initially, the project will use three different columns, a Rxi-5ms, a Rxi-5amine and a Rxi-200. If time permits the following stationary phases could also be evaluated: Rxi-17, Rx-35 and Rxi-50. In addition to standards, actual case samples from a crime laboratory will be analyzed. Statistics of the data will be calculated so results calculated from performing the method in the field will have probability statistics that can be used to determine how likely an unknown substance matches a known fentanyl analogue.

From this research the Ocean County Sheriff's department forensic laboratory will have a method for confirming fentanyl and other fentanyl analogues. The publication of this method using GC-MS, a common form of instrumentation in forensic laboratories, will contribute to subsequent analysis of samples that screen positive for fentanyl using the fentanyl ELISA assay. Accurate reporting of fentanyl abuse will present more information about the epidemic so agencies working to keep up with designer drugs can identify analogues being seen. It is clear there is a fentanyl epidemic, knowing more about the derivatives will contribute to the trends

specific analogues. Having validated the method, results obtained from real case samples will be valid in legal circumstances.

Table 1. Tabular Data of Budget (concentrations are 1 mg/mL of methanol)

Product	Vendor	CAS №:	Amount	Price
Carfentanil	Cayman Chemical	59708-52-0	1	\$89.00
Fentanyl	Cayman Chemical	1443-54-5	1	\$25.00
Acetyl Fentanyl (hydrochloride)	Cayman Chemical	117332-89-5	1	\$35.00
Butyryl fentanyl carboxy metabolite	Cayman Chemical	52994-23-7	1	\$95.00
Crotonyl fentanyl	Cayman Chemical	760930-59-4	1	\$65.00
4-ANPP	Cayman Chemical	21409-26-7	1	\$59.00
Furanyl fentanyl (hydrochloride)	Cayman Chemical	101365-56-4	1	\$65.00
Valeryl fentanyl (hydrochloride)	Cayman Chemical	117332-91-9	1	\$65.00
FIBF (hydrochloride)	Cayman Chemical	*19313	1	\$65.00
Cyclopropyl fentanyl (hydrochloride)	Cayman Chemical	*21739	1	\$65.00
3-Fluorofentanyl (hydrochloride)	Cayman Chemical	*21952	1	\$65.00
(±)-cis-3-methyl Fentanyl (hydrochloride)	Cayman Chemical	78995-18-3	1	\$65.00
4'-methyl Acetyl fentanyl (hydrochloride)	Cayman Chemical	1071703-95-1	1	\$65.00

Isobutyryl fentanyl (hydrochloride)	Cayman Chemical	117332-90-8	1	\$65.00
Ocfentanil (hydrochloride)	Cayman Chemical	112964-97-3	1	\$65.00
α -methyl Fentanyl (hydrochloride)	Cayman Chemical	1443-44-3	1	\$65.00
Remifentanil (hydrochloride)	Cayman Chemical	132539-07-2	1	\$65.00
Alfentanil (hydrochloride)	Cayman Chemical	69049-06-5	1	\$65.00
Isobutyryl norfentanyl	Cayman Chemical	1046436-53-6	1	\$95.00
(\pm)-trans-3-methyl Fentanyl (hydrochloride)	Cayman Chemical	78995-09-2	1	\$65.00
Despropionyl ortho-Fluorofentanyl	Cayman Chemical	864422-91-3	1	\$65.00
Methacrylfentanyl	Cayman Chemical	*22884	1	\$65.00
Norfentanyl	Cayman Chemical	1609-66-1	1	\$16.00
Overall Total				\$1395.00

*Denotes item no. because a CAS no. was not available

The budget listed above is approximately \$1395.00. A grant in the sum of \$2500 from the Northeastern Association of Forensic Scientists organization would greatly contribute to this research project as well as fund expenses for accommodations while attending and presenting this project at the Meeting.

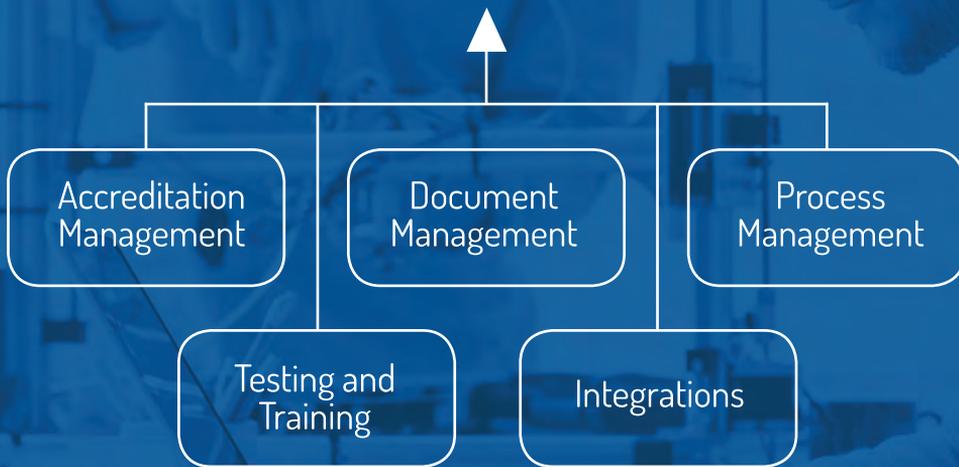
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*George W. Neighbor, Jr. Memorial Scholarship
Undergraduate Winner – McKenna Lohr (Dusquesne University)*

McKenna is a fourth year student in a five year Master of Science Program in Forensic Science and Law at Duquesne University. She received a Bachelor of Science in Biology in May 2018 and will receive a Master of Science in Forensic Science and Law in May 2019.

McKenna is currently working on her Mater's research project, "What Can Be Learned from a Bag of Bones: Ancient Human Skeletal Remains from the Flevaeis Plot in Rhodes" under Dr. Lisa Ludvico. The goals of her project is to determine if DNA extraction from the remains is possible, as the bones are estimated to be between 1600 to 5200 years old, as well as utilize historical context, osteological analysis, and DNA analysis to determine how many individuals are within our set of remains as well as determine information about the individuals such as sex, age, and ancestry.



Being a part of this project has kindled McKenna's passion as she feels her work, be exploring methodology that can be utilized with buried and/or degraded material found at crime scenes or other sites, can broaden the limits of what we thought was possible with DNA recovery and identity determination. By combining history, osteology, and DNA analysis in a multidisciplinary approach, the field will have the capability to determine a full and multi-faceted profile of an individual as well as determine how they lived and how they may have dies. McKenna is interested in continuing research with ancient DNA as well as completing graduate studies in anthropology with the intent of becoming a professor one day as she feels the greatest thing she can do as a scientist is mentor the next generation.

McKenna has a proactive attitude along with a strong work ethic which motivates her to constantly seek improvement through pursuing opportunities for growth. This can be demonstrated by her GPA and subsequent appearance on her schools Dean's List as well as her participation in the Honors College at Duquesne and her designation as an Honors Fellow. McKenna is also involved in numerous organizations and holds distinguished positions as a team leader for Orientation, a mentor for Strong Women, Strong Girls, and as a secretary for her school's student run science journal, the D.U. Quark. McKenna also volunteers her time at the Carnegie Museum of Art and Natural History and has recently been invited to become a member of Delta Delta Epsilon International Forensic Science Honor Society. She has experienced presenting her work through posters at the 20th Annual Undergraduate Research Symposium and 10th Annual Undergraduate Research and Scholarship Symposium at Duquesne University as well as the 8th Annual Forensic Science Student Research Exchange at Pennsylvania State University. McKenna feels that her experiences and passion made her an ideal candidate for the George W. Neighbor Jr. Memorial Scholarship.

*George W. Neighbor, Jr. Memorial Scholarship
Graduate Winner – Andrew Ziegler (Boston University)*



Andrew's ambitions and aspirations have been focused on a career as a forensic professional for over 5 years. He was introduced to the study of forensic science during an elective course as an undergraduate student at Ohio Northern University. He quickly recognized his passion for the field and altered his educational trajectory to pursue forensic

science as his major. Andrew's adeptness for the molecular biology was commended by his professors and, as a result, he was subsequently selected as one of three students to work in the ONU DNA Lab, a unique opportunity for students to develop and advance laboratory skills in a properly maintained clean laboratory environment.

Continuing his exploration of forensic sciences, Andrew applied for and was selected to participate in a forensic pathology internship program with the Vermont Office of the Chief Medical Examiner during the summer months of 2015. This was the first time the office accepted an intern that studied outside of Vermont, and the only time the office adapted their program to accommodate a full-time position. Andrew became a very involved intern, gaining permission to participate in the forensic autopsies, assist the morgue technicians, and observe clinical autopsies at the affiliated hospital. Outside of the autopsy room, he researched and drafted a manuscript that discussed the frequency and significance of insulin pump failures among five medical examiner/coroner offices located in various states within the U.S. This information was presented as a poster at the American Academy of Forensic Sciences 2018 Annual Scientific Meeting and has very recently been submitted for publication in the Journal of Forensic Sciences.

Andrew graduated cum laude in 2016 with a Bachelor's of Science in Forensic Biology. In 2017, he obtained acceptance to the Biomedical Forensic Sciences master's program at the Boston University School of Medicine. Here, Andrew has excelled in his studies and extracurricular endeavors. Currently, he serves as the president of the Boston University Forensic Science Society and has been selected to intern with the Boston Police Department for the Fall of 2018. He is currently working with the program faculty as they prepare a forensic science symposium for the nearby scientific community. This summer, Andrew will be beginning his graduate thesis, continuing research on a novel method for the differential extraction of DNA.

To him, forensic science is the unique application of science to solve problems that matter to so many people, regardless of background, education, or affiliation; problems with dramatic implications that often cannot be resolved otherwise. Andrew is passionate about obtaining the skills and knowledge needed to best solve these problems. Simply being recommended for the George W. Neighbor Jr. Memorial Scholarship vindicated his devoted endeavors thus far, and receiving this award undoubtedly helps him in achieving his goal: becoming an exceptional DNA analyst and forensic professional.

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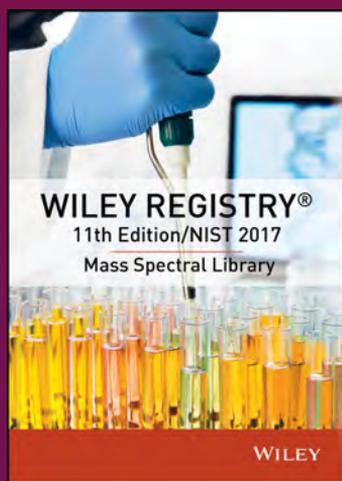
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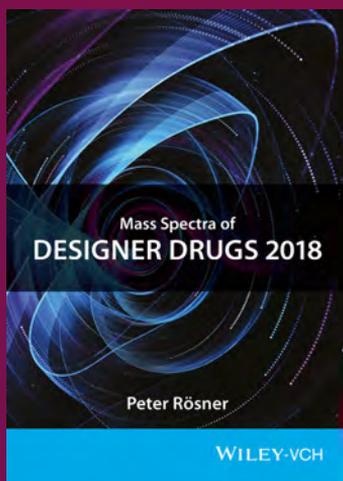
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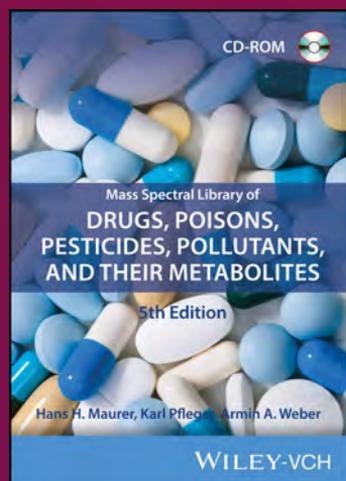
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George W. Chin Memorial Scholarship – Erin Monko (Dusquesne University)

Erin applied to the George W. Chin Memorial Scholarship because of her passion for her chosen major and career path, Forensic Science and Law. She feels that she was an excellent candidate for this scholarship because of her ability to balance academics, part-time employment, and student organization involvement.

As a senior in Duquesne's Forensic Science and Law master's program, she has formed a strong scientific foundation that will suit a career in any discipline of Forensic Science. This concrete foundation was formed while she maintained high academic standing, with a cumulative GPA of 3.99.

However, Erin feels that her extracurricular experiences truly set her apart from her classmates. Erin is a student of the honors college, which has its own set of requirements, including six core curriculum classes given an 'honors' designation.

Additionally, Erin has had an internship with a company specializing in Forensic DNA analysis for a year and a half. She has found that the skills she gained through this internship have supplemented the material from lecture and lab nicely. Along these lines, she has chosen a research project that focuses on the usefulness of kinship-inferred genetic profiles in comparison to buccal swab reference profiles for DNA mixture interpretation. There is no doubt that Erin is interested in Forensic Biology. She is looking forward to her graduate year, which will give her the opportunity to gain experience in many disciplines of Forensic Science, namely serology and DNA. Because these areas are where her interests lie, she would love to work in a lab specializing in one of these disciplines.

Erin has found throughout her time at Duquesne that she enjoyed sharing her love of science with other students. Her involvement in Phi Sigma Lambda, the professional forensics fraternity on campus, and the American Chemical Society has really driven this passion home. These organizations specialize in scientific outreach, something that Dr. Chin was also passionate about. The most notable outreach experience for her was her role as the Student Director of the Forensic Science and Law Summer Workshop last July. This workshop provided a four-day forensics experience for twenty-one high school students, beginning with evidence collection at a mock crime scene and continuing through laboratory analysis, guest lectures, and a mock trial. Not only did this experience allow Erin to share the field she loves with other students, but it also gave her the opportunity to network with professionals in the field and with her student peers. Erin's dream job would allow her to continue to teach others, maybe not in the traditional sense but through workshops and lectures.

Erin believes that she fits the George W. Chin Memorial Scholarship as she excels in her program and is very passionate about her choice to study Forensic Science.





ATTENTION STUDENTS:

Are you a current full-time undergraduate student in your junior or senior year, or are you either a part-time or full-time graduate student completing his or her degree in a forensic program at a regionally accredited institution located in the Northeastern U.S. (Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont, Maine, New Jersey, New York, and Pennsylvania)?

Then you are eligible to apply for:

George W. Neighbor Jr. Memorial Scholarship (undergraduate) - Award is \$1750

George W. Neighbor Jr. Memorial Scholarship (graduate) - Award is \$1750

George W. Chin Memorial Scholarship – Award is \$2000

Carol De Forest Forensic Science Research Grants - Award is \$2500

***Note** – eligibility is for both full-time undergraduate and graduate students

**** Note** – Two Research Grants will be Awarded.

All submission materials for either the scholarships or the research grants must be completed, and electronically submitted by April 30th. The 2019 Awards recipients will be notified no later than September 1st.

For more information and Scholarship/Research Grant forms please go to <http://www.neafs.org/>

Questions or comments? Please email Awards@NEAFS.org.

THE GEORGE W. CHIN MEMORIAL SCHOLARSHIP

NEAFS and the Chin Family



On September 22, 2016, NEAFS lost one of the pioneers of the Association. George had a passion for forensic science and as a self-appointed “God of Trace Evidence”, he liked to share his knowledge and mentor the younger generation. George was one of the co-founders of the Student Forum at NEAFS, where he would teach students about the realities of a job in forensic science. In addition to NEAFS, he was also a life member of the New Jersey Association of Forensic Scientists (NJAFS), a charter member of the American Society of Trace Evidence Examiners (ASTEE), and a member of the American Academy of Forensic Sciences (AAFS) and the New Jersey Homicide Investigators Association (NJHIA).

A graduate of John Jay College of Criminal Justice – City University of New York (CUNY), his professional career spanned 36 years with the New Jersey State Police. When George first started in March of 1980, he was briefly assigned to the Equine Laboratory at the Meadowlands, but quickly transitioned to a position at the North Regional Laboratory, where he was able to grow his love for all things Trace Evidence. George loved his work and helped to educate students about our field. He would routinely take his own time to go and lecture to high schools and attend their career fairs. In addition, George has mentored numerous interns over the course of his career, many of whom have him to thank for their current employment!

George’s graciousness was felt by all who came into contact with him and his passing leaves a huge void in the forensic community and in our hearts.

George’s family has graciously set up this Memorial Scholarship fund in his memory and honor.

THE GEORGE W. CHIN MEMORIAL SCHOLARSHIP

Eligibility requirements for the George W. Chin Memorial Scholarship:

- Currently enrolled in a Forensic Science program
- Full-time undergraduate students in their junior or senior year
- Full or part-time graduate students (limited to first two years for PhD students)
- The student must demonstrate excellence in his/her academic program.

Application requirements:

- Two letters of recommendation (each accompanied with the recommendation form) from Professors involved in the Forensic Science curriculum.
- A letter from the student describing his/her personal aspirations in the Forensics field, achievements and reasons for award consideration. (Minimum of 250 words - maximum of 500 words). This must be provided to the Professors submitting the recommendation letters.
- Applicants should be attending college/university within the area from which the Northeastern Association of Forensic Scientists draws its members (Maine, New Hampshire, Vermont, Rhode Island, Massachusetts, New York, Connecticut, New Jersey, and Pennsylvania).
- Most current academic transcripts.
- Application requirements must be emailed by **April 30th**. Out of fairness to all potential candidates, no exceptions will be made.

Interested candidates should submit the above requirements electronically in a single PDF titled (GWC_Last name_First name_Grad) OR (GWC_Last name_First name_Undergrad) to awards@neafs.org

THE GEORGE W. CHIN MEMORIAL SCHOLARSHIP



Are you a current full-time undergraduate student in your junior or senior year, or are you either a part-time or full-time graduate student or in your first two years of your Ph.D. Forensic Science program? Do you attend a college or university within the area from which NEAFS draws its members (CT, NY, NJ, PA, VT, NH, ME, RI, MA)? Do you demonstrate excellence in your academic program?

If Yes, you are eligible to apply for the George W. Chin Memorial Scholarship!

The award is \$2000.00 as well as Associate membership for one year in the NEAFS organization. Membership will be granted to a current member or active applicant as well as a non-member (the application fee will also be included).

All submission materials for the Memorial Scholarship must be completed and electronically submitted by April 30. The award recipients will be notified no later than September 1.

For more information and to obtain the application forms, go to <http://www.neafs.org>

If you have any questions please email: awards@neafs.org

Northeastern Association of Forensic Scientists

George W. Chin Memorial Scholarship

Application Form

Undergraduate Graduate Ph.D. (1st 2 years) (select one)

Name _____ Email _____

School Residence _____ School Phone Number _____

Home Address _____ Home Phone Number _____

College/Institution _____ Current Year _____

Personal aspirations in the Forensics field, achievements and reasons for award consideration –

Minimum of 250 words and a maximum of 500 words

(Please use the space below and/or attach additional sheets, if necessary)

All applicants must submit the following materials electronically in one pdf file to awards@neafs.org: 1) Candidate application; 2) Two recommendation forms from Professors in the Forensic Science curriculum and corresponding letters; 3) Most current academic transcripts.

All materials must be submitted and received no later than **April 30th**. The winner will be notified no later than September 1st.

NEAFS does not discriminate against any applicant because of race, color, religion, sex, national origin, or physical handicap.

OFFICIAL USE ONLY: Reference# _____ Date Received _____ Initials _____

Northeastern Association of Forensic Scientists

George W. Chin Memorial Scholarship

Recommendation Form

Undergraduate___ Graduate___ Ph.D. (1st 2 years)___(select one)

Candidate's Name _____ Date _____

Professor's Name _____ Signature _____

Title _____ College/Institution _____

Address _____

Phone Number _____ Affiliation with Candidate _____

Please check the appropriate code: O=Outstanding E=Excellent G=Good A=Average BA=Below Average NI=No Information

	O	E	G	A	BA	NI
Knowledge of subject matter	<input type="checkbox"/>					
Ability to work with others	<input type="checkbox"/>					
Communication skills	<input type="checkbox"/>					
Leadership	<input type="checkbox"/>					
Reliability	<input type="checkbox"/>					
Initiative	<input type="checkbox"/>					
Maturity	<input type="checkbox"/>					
Integrity	<input type="checkbox"/>					
Attitude	<input type="checkbox"/>					

Please feel free to give us any additional comments you feel may be helpful to us. (Attach additional sheets, if necessary.)

I have read the candidate's letter and find it to be true and accurate to the best of my knowledge. Agree Disagree

All applicants must submit the following materials electronically in one pdf file to awards@neafs.org: 1) Candidate application; 2) Two recommendation forms from Professors in the Forensic Science curriculum and corresponding letters; 3) Most current academic transcripts.

All materials must be submitted and received no later than **April 30th**.

NEAFS does not discriminate against any applicant because of race, color, religion, sex, national origin, or physical handicap.

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Dr. Peter De Forest Student Research Presentation Winner



Best Oral Presentation - Graduate:
Meghan G. Fogerty, The State University of New York – Albany (pictured above)
"Sky High: Sorbent-Facilitated Headspace Mass Spectral Analysis for the Detection and Identification of Plant-Based Legal Highs"

Best Oral Presentation - Undergraduate:
Nicole Homburger, Hofstra University (not pictured)
"Rapid NMR Spectroscopic Identification of Opioids"



Best Poster Presentation - Graduate:
Amy Osborne from University of Albany, SUNY, for "Species Identification of Necrophagous Beetles by Chemometric Processing of DART-HRMS Chemical Signatures of Ethanol-Insect Suspensions"



Best Poster Presentation - Undergraduate:
Rachel Gilmore from University of New Haven for "Recovery of touch DNA: a comparison of four collection methods on various substrates"

The George W. Chin Collegiate Cup NEAFS College Bowl

Held at the Annual Meeting after the Student Forum



**Northeastern Association
of
Forensic Scientists**

On September 22, 2016, NEAFS lost one of the pioneers of the Association. George had a passion for forensic science and as a self-appointed “God of Trace Evidence”, he liked to share his knowledge and mentor the younger generation. George was one of the co-founders of the Student Forum at NEAFS, where he would teach students about the realities of a job in forensic science. The name of this award was originally the “Kirk Cup” but was changed to the George W. Chin Collegiate Cup in 2016 in his honor.

Teams of four students will compete in a quiz type game including questions from all forensic disciplines. If there are only two college teams they will compete against each other in a General Education College Bowl format. Both graduate and undergraduate teams are welcome and will compete for separate trophies. So get your team together, go to the bookstore and get a school pennant and enter.



**Congratulations to the
George W. Chin
Collegiate Bowl 2018 Winners**

**Undergraduate - Western New
England University (not
pictured)**

Graduate – Cedar Crest College

For information and questions regarding 2019 George W. Chin Collegiate Cup, please contact the Program Chair at presidentelect@neafs.org.

Analysis of Ethanol in Blood, and Oral Fluid Samples from Dosed Individuals by Headspace Gas Chromatography

Emily R. Parchuke, M.S.^{1}, Matthew Wood, Ph.D., D-ABC², Marianne Staretz, Ph.D.¹ and Thomas A. Brettell, Ph.D., D-ABC¹,*

¹*Forensic Science Program, Cedar Crest College, Allentown, PA 18104*

²*Forensic Science Laboratory, Ocean County Sheriff Department, Toms River, NJ 08753*

Updates since Midterm Report

Sample Preparation

Samples were prepared using 3 mL of internal standard (0.016% n-propanol), 300 μ L of sample, and ¼ teaspoon of NaF/NaCl salt mix placed into a 22 mL headspace vial.

Instrumentation

A Clarus 580 gas chromatograph with two flame ionization detectors equipped with dual Elite-BAC1 and Elite-BAC2 columns (Perkin Elmer, USA) were utilized for sample analysis. All samples were prepared in Perkin Elmer 22 mL headspace vials capped with septa and sealed with an electronic crimper (Perkin Elmer, USA). The oven temperature was set at a constant 70°C, with the injector at 160°C and the dual detectors at 250°C. Helium carrier gas was utilized at a flow of 12.3 mL/min. Each vial was heated for 15 minutes to an equilibration temperature of 60°C. Samples were injected onto the column for 0.01 minutes with a total run time of 2.0 minutes.

Data Analysis

A calibration curve was generated in order to complete quantitative work off of the BAC-1 column (FIG 1). An r^2 value of 0.999 was obtained from the linear regression function of Microsoft Excel (2016), indicating that the equation of the line generated fit well with the data obtained.

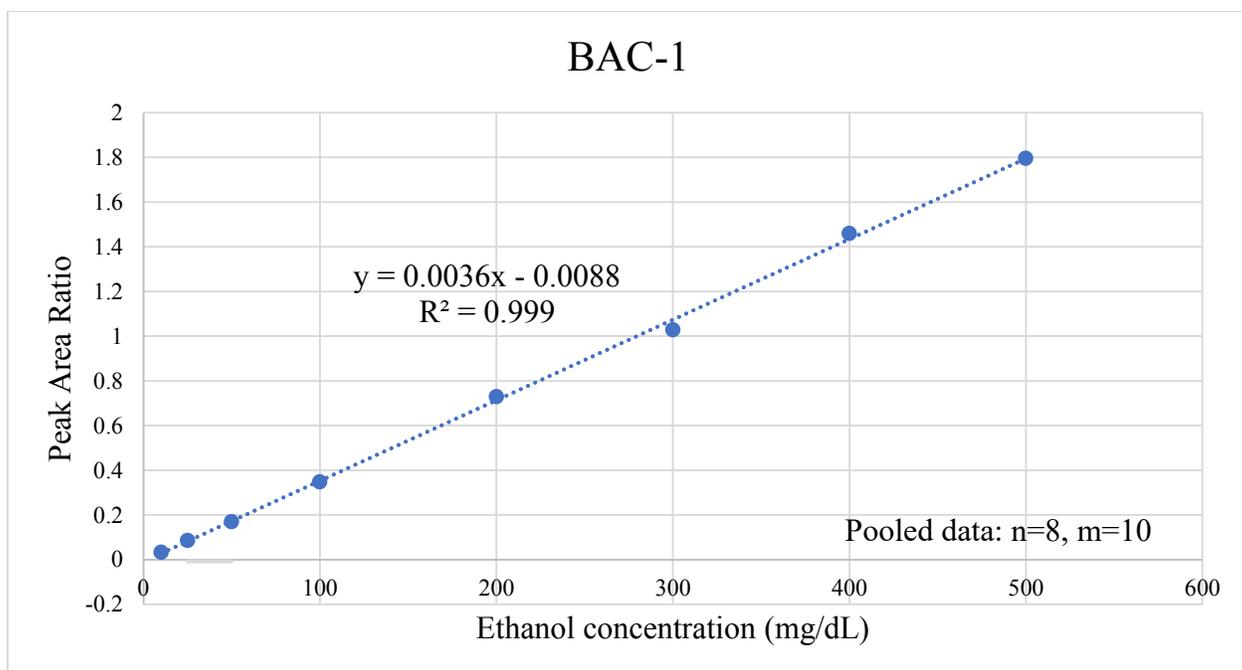


FIG. 1 – Calibration curve generated over 5 days on BAC-1 column

The residuals from this calibration curve were assessed by generating a residual plot. If a linear regression model is to be considered the appropriate fit for the data at hand, the residuals observed should be normally distributed, such that they tend toward zero, with very few large positive or large negative values. The residual plot illustrates this observation, indicating that the model of linear regression fits the data at hand.

Relative standard deviation (RSD%) and accuracy (%) were determined for interday and intraday studies completed (TABLE 1, 2). All values were determined to be within an acceptable tolerance for the purposes of this work.

TABLE 1 – Intra- and interday study results for blood at 0.01, 0.15, and 0.30 g/dL

Blood		
	RSD%	Accuracy%
Intra-assay		
0.01 g/dL	0.16	3E-3
0.15 g/dL	2.75	1.90
0.30 g/dL	0.83	3.70
Inter-assay		
0.01 g/dL	2.85E-2	1E-3
0.15 g/dL	6.65E-2	4.08
0.30 g/dL	0.17	4.00

TABLE 2 – Inter- and intraday study results for oral fluid at 0.01, 0.15, and 0.30 g/dL

Oral Fluid		
	RSD%	Accuracy%
Intra-assay		
0.01 g/dL	1.42	7E-3
0.15 g/dL	0.32	2.87
0.30 g/dL	0.50	4.36
Inter -assay		
0.01 g/dL	0.10	2E-3
0.15 g/dL	0.18	2.09
0.30 g/dL	2.7E-2	5.53

Reexamination of Case Samples

The monetary assistance from the Carol DeForest Grant provided the resources to be able to reexamine case samples collected from The Ocean County Sheriff's Department as well as previously administered proficiency tests. The case samples and proficiency tests were run in triplicate using the sample preparation method outlined previously.

TABLE 4 – Reexamination of case samples received from The Ocean County Sherriff's Department Crime Laboratory

Case #	EP Results (g/dL)*	OC Result (g/dL)	% Error
A	0.126	0.149	-15.7
B	0.00	0	0.0
C	0.194	0.229	-15.3
D	0	0	0.0
E	0.245	0.258	-5.1
F	0.105	0.126	-16.3
G	0.066	0.068	-3.0
H	0.165	0.188	-12.3
I	0	0	0.0
J	0.169	0.185	-8.9
K	0.066	0.08	-17.5
L	0.105	0.124	-15.6

TABLE 5 – Reexamination of previously administered proficiency tests received from The Ocean County Sherriff's Department Crime Laboratory

Test #	EP Results	OC Result	% Error
M	0.081	0.10	-18.8
N	0.262	0.29	-9.6
O	0.038	0.05	-24.8
P	0.149	0.17	-12.6
Q	0.066	0.08	-17.4
R	0.287	0.32	-10.3
S	0.203	0.24	-15.3
T	0.133	0.15	-11.6

All samples that were previously determined to be negative, meaning that the Ocean County Crime Laboratory issued a report indicating that there was an alcohol concentration of 0.00 g/dL, were also determined to be negative upon reexamination. However, lower values for the quantitation of alcohol were determined when sampled and reanalyzed. This was determined to likely be due to the age of the samples reexamined, as many were collected 1-3 years prior to analysis. The difference in the quantity of alcohol determined upon reexamination led to the determination of negative percent error when comparing the concentration of alcohol in the samples.

NEAFS Visiting Scientist Program

Any private or public forensic science laboratory in the NEAFS geographical area needing technical, scientific, or training assistance may apply to the NEAFS Visiting Scientist Program.

Upon request, NEAFS will make a good faith effort to find a qualified individual(s) to come to the laboratory and provide the assistance. The person(s) selected will be agreed upon between NEAFS and the laboratory. Preference may be given to subject matter experts within the NEAFS membership. NEAFS will subsidize up to \$5,000 for the visit which can be up to 5 working days in duration. Travel logistics will be arranged by the laboratory in conjunction with both the visiting scientist and NEAFS.

At least one NEAFS member must be in attendance.

Interested laboratories shall complete the attached application and email it to the NEAFS Education Chairperson at education@neafs.org. Applications should be received at least 6 months in advance of the anticipated date(s) of the visit. The contact person can expect to be informed by the Education Chair of the approval or denial of the request within 30-60 days of receiving application.

The number of quality hours for those claiming continuing education credit as a result of the training will be determined by the instructor(s).

NEAFS Visiting Scientist Request Form

Laboratory: _____

Laboratory Director/Manager: _____

Address: _____

Contact: _____

Phone: _____

Email: _____

Request (Be Specific):

Do you have a particular individual(s) who you wish to be the visiting scientist?

Approximate desired date(s) of visit: _____

Number of individuals attending the training: _____

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**GET YOUR
NEAFS GEAR!**

2019 Training Scholarship Fund

The Northeastern Association of Forensic Scientists (NEAFS) is proud to offer its members a 2019 Training Scholarship Fund. Regular members, in good standing, are eligible to receive up to \$400 towards training, workshop or non-NEAFS meeting registration expenses. Detailed instructions and application forms are available on the NEAFS website. Simply click the “Training” link at the top of the screen and scroll down to the “NEAFS Training Scholarship Forms”. The current application period is January 1st, 2019 to December 31st, 2019. Reimbursements will be issued on a first come, first serve basis and funding is limited. If you plan to attend a non-NEAFS meeting workshop, training or course during this application period and will not be funded by your agency or any other non-NEAFS related entity, we highly encourage your swift application for the 2019 Training Scholarship Fund. Please visit the NEAFS [training](#) website to take advantage of this great NEAFS opportunity and to view upcoming training opportunities!



NORTHEASTERN ASSOCIATION OF FORENSIC SCIENTISTS 2019 TRAINING SCHOLARSHIP FUND

OPEN APPLICATION PERIOD: JANUARY 1st, 2019- DECEMBER 31st, 2019

APPLICATION REQUIREMENTS

The Northeastern Association of Forensic Scientists (NEAFS) is proud to offer its members a Training Scholarship Fund (TSF). **Members in good standing are eligible to receive up to \$400 towards training, workshop or non-NEAFS meeting registration and travel expenses.** Individuals will only be allowed reimbursement once per application period. Any NEAFS Annual Meeting expenses are ineligible to receive funding. Reimbursement will occur upon receipt of a certificate showing successful attendance and completion of the course along with an article summarizing the course for the NEAFS newsletter.

APPLICATION INSTRUCTIONS

Applicants must submit a *Pre-Approval Application* prior to attending the training for which they wish to obtain funding. All applications must be complete with a brief course description, statement as to how the applicant will benefit from attending the training and justification for receiving funding (i.e. insufficient employer funding or continuing education requirements).

Notification will be given to each applicant upon receipt of the *Pre-Approval Application*. This notification lets the applicant know that their submission has been received **by the Awards Chair** at NEAFS and is being reviewed. Applicants can expect to be informed of the acceptance or rejection of their application within 60 days of receiving this *Pre-Approval Application* notification.

Upon successful attendance and completion of the training, all pre-approved applicants must submit a *Reimbursement Application* along with supporting documentation. Whenever possible, a certificate should be provided as proof of attendance and completion. If a certificate is not issued, or is unavailable, a letter from the organizer/instructor verifying the applicant's successful attendance and completion shall suffice. Each Training Scholarship Fund recipient is required to contribute to NEAFS and its members by publishing a written article in the Newsletter. *Reimbursement Applications* will only be considered complete when accompanied by a 1000-word (minimum) course summary.

All application materials can be found on the NEAFS website. Please submit all inquiries, applications and supporting documentation to: awards@neafs.org.



NORTHEASTERN ASSOCIATION OF FORENSIC SCIENTISTS TRAINING SCHOLARSHIP FUND

PRE-APPROVAL APPLICATION

Instructions: To be completed prior to attending the workshop/meeting eligible for reimbursement.

Applicant Information

First Name: _____ Last Name: _____

Organization/Agency: _____

Street: _____

City: _____ State: _____ ZIP Code: _____

Phone: _____ Fax: _____ E-Mail: _____

NEAFS Member Number: _____

ABC Status: Diplomat Fellow Board Member Affiliate Exam Committee

Training Information

Course Title: _____

Sponsor/Host Organization: _____

Meeting Dates & Times: _____

Location: _____ Travel Dates & Times: _____

Course Description: _____

Attendance Benefit to Applicant: _____

Expenses

Registration Cost: _____

Travel Cost: _____

Justification for Reimbursement:

Will you be reimbursed by your agency or any other non-NEAFS related entity for any expenses incurred as a result of attending the above training? Yes No

If "Yes", provide funding agency and amount: _____

Have you been funded to attend all or part of a workshop or training course this year? Yes No

If "Yes", provide cost of workshop(s)/training(s) attended and amount compensated: _____

FOR OFFICIAL USE ONLY: Reference #: _____ Date Received: _____ Initials: _____



NORTHEASTERN ASSOCIATION OF FORENSIC SCIENTISTS

TRAINING SCHOLARSHIP FUND

REIMBURSEMENT APPLICATION

Instructions: To be completed upon successful completion of the workshop/meeting approved for reimbursement.

Applicant Information

First Name: _____ Last Name: _____
 Organization/Agency: _____
 Street: _____
 City: _____ State: _____ ZIP Code: _____
 Phone: _____ Fax: _____ E-Mail: _____

Training Information

Course Title: _____
 Sponsor/Host Organization: _____
 Meeting Dates & Times: _____
 Location: _____ Travel Dates & Times: _____
 Instructor/Organizer: _____
 Phone: _____ Fax: _____ E-Mail: _____

*If applicable, provide proof of attendance and successful completion by attaching a certificate to this form.

NOTE: Each applicant must write a 1000-word (minimum) course summary to accompany this form. Applicants awarded full or partial workshop reimbursement will have their course summaries published in the NEAFS Newsletter. The preferred format is a Microsoft Word document. Reimbursement applications submitted without a course summary will be considered incomplete and ineligible for reimbursement.

Reimbursement Information

Expense(s) Incurred: _____

*Applicants must provide proof of payment for each expense listed on this application.

Will you be reimbursed by your agency or any other non-NEAFS related entity for any expenses incurred as a result of attending the above training? Yes No

If "Yes", provide funding agency and amount: _____

FOR OFFICIAL USE ONLY: Reference #: _____ Date Received: _____ Initials: _____

Historical facts – NEAFS

- “NEAFS was founded in 1975 by a group of dedicated forensic scientists dedicated to improving the professional status and technical capabilities of individuals engaged in all phases of forensic science.” “To accomplish its goals, NEAFS conducts continuing education seminars featuring workshops and special training sessions. The Annual Meeting...presents a contagious atmosphere of scientific exchange and social congeniality.” Mark Lewis, President 1980
- The first Editor of the newsletter in 1976 was R.E. Gaensslen
- The first meeting of the Executive Board was on May 1, 1976 by President Angelo Fatta. Also in attendance were Vincent Crispino, R.E. Gaensslen, Thomas Kubic, Carl Moller and Alexander Stirton.
 - On this first meeting, it was stated that there were 211 members and this number included applicants. Six of those members were upgraded to Regular members.
 - The first annual meeting was being discussed. The annual meeting was to be a one day meeting on or about October 23, 1976. Tentative sites were John Jay College or C.W. Post College. The schedule was: 8am-12pm Coffee and Registration, business meeting and split sessions; Lunch; 1pm-5pm two general interest talks, split sessions, mixer and dinner. The split sessions included serology, microscopy, arson, toxicology and drug identification. The general interest talks would be short and would be concerning aspects of forensic science that would be unfamiliar or unusual to most members.
- NEAFS was incorporated by the State of Connecticut on May 12, 1976. Vincent Crispino, Thomas Kubic and Henry Lee were the Incorporators.
- The NEAFS newsletters were published by the Forensic Sciences Foundation which was located in Maryland.
- A joint meeting was held on April 15-16 with MAAFS in New Jersey as well as the Annual Meeting of NEAFS on October 29th in 1977.
- Dr. Peter De Forest chaired the Hairs and Fibers Session during the Second Annual Meeting. Alexander Stirton chaired the Serology Session and Dr. Jesse Bidanset chaired the Toxicology Session during the Second Annual Meeting.
- The newsletters included information from other regional organizations as well as NEAFS.
- In 1977, the BOD acted as an ad hoc Education Committee and set up two courses intitled: “Forensic Microscopy” and “Introduction to the Forensic Applications of Infrared Spectroscopy”.
- A luncheon was held during the 3rd Annual meeting of NEAFS and consisted of salad, a choice of roast beef or filet of sole, dessert and a beverage for \$6.00. Cocktails were \$1.50 and beer and wine were \$1.00.
- In 1978, the annual meeting was increased to a two day program instead of one day.
- George Neighbor volunteered to chair the Paint analysis program for the 1978 Annual Meeting.
- In 1978, NEAFS sponsored a training course entitled “Basic Bloodstain Analysis” and it was taught by Dr. Henry Lee, Dr. R.E. Gaensslen and Dr. Peter De Forest. This course was held at the University of New Haven.
- George W. Neighbor was the Secretary of NEAFS in 1978.
- Thomas A. Kubic was voted in as a Life Member of NEAFS while he was President in 1978.
- In 1979, Chris Chany was approved to become a Provisional member from a student member and Peter Diaczuk was approved to be a Corresponding member.
- George W. Neighbor was President-elect in 1980.
- Travel reimbursement for mileage was 17 cents/mile in 1980.
- NEAFS had 400 members in 1980.
- In May 1980 in Louisville Kentucky, NEAFS participated in the first multi-regional association meeting.
- George W. Neighbor had a BA degree in Chemistry from Rider College and a MS in Forensic Science from John Jay College. He worked as a Principal Forensic Chemist for the NJSP in the North Regional Laboratory in Little Falls, NJ where he supervises the trace evidence and bio-chemical units. Prior to working with the NJSP, He has

twenty years of industrial research experience in materials analysis. He served as Secretary for two terms (1978-79) and was a member of the AAFS and the Forensic Science Academy. George became President of NEAFS in 1981 – the 7th year in NEAFS history. George stated at the end of his President’s message in the March 1981 newsletter “Now you can call me George, or you can call me G.W., or you can call me George W., or you can call me Hi Neighbor”. In 1989, George presented “Trace Evidence Never Grows Old” during the Criminalistics Session.

- In 1997, the Scholarship award was renamed the George W. Neighbor Jr. Memorial Scholarship
- In 1980, the Annual Meeting budget was \$2000.
- 1980 Goals of NEAFS
 - Exchange ideas and information among professionals in the field
 - Promote recognition of forensic science as an important part of the justice system
 - Sponsor and organize seminars, workshops, and special training sessions
 - Represent the membership on national issues affecting forensic science
 - Encourage research and development
 - Stimulate implementation of new methods and techniques
 - Establish professional standards
 - Provide advice on educational curricula, legislation and other matters affecting the profession
 - Arbitrate professional disputes
 - Foster friendship and collegiality among the forensic scientists of the Northeast
- For the 10th Annual Meeting, the room rate was \$55 (single or double).
- The 12th annual meeting was the first meeting held in New England in Peabody, MA. A clam bake was scheduled.
- The door prizes that were given out at the 11th Annual Meeting were a Commodore 64 Computer, Cannon AE1 Camera, Reflecting Telescope and an AM-FM radio.
- Our current method of visiting the exhibitor booths and obtaining confirmation of the visit goes back to at least the 9th Annual Meeting in 1983.
- The door prizes given out at the 14th Annual Meeting which was donated by Perkin-Elmer were a Video Cassette Recorder, Compact Disk Player, Scientific Programmable Calculator, Cordless Telephone and a Sony Walkman.