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August 2018

ASTEE Newsletter

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Message from the President

Hello ASTEE Members!

We are halfway through a glorious summer, and I hope everyone is enjoying themselves! Last month, ASTEE co-sponsored the Reggie's Rooftop Dinner during the Inter/Micro meeting at McCrone Research Institute in Chicago. It was a beautiful evening, the food was delicious, the drinks flowed freely, and we all quite enjoyed ourselves! The event attracted several new ASTEE members, and there were plenty of current members in attendance as well. The trivia contest, emceed'd by yours truly, was a tight one, and a tie-breaker was needed to determine the winner at the end. Take a crack at a few sample questions on page 8.

ASTEE is excited to announce our joint meeting in 2019 with the Southern Association of Forensic Scientists! Join us April 29 - May 3 in Asheville, North Carolina for what will certainly be an informative, fun-filled, trace-centric meeting in a beautiful setting. Think about presenting a talk on an interesting case, or forensic science research you (or your students/interns) have conducted. ASTEE will be providing two travel awards of \$500 each to assist our members with costs to attend the meeting. If there is a workshop you are interested in conducting or attending, please feel free to contact me at the email address listed below. I'm hoping we see a large contingent of ASTEE members in attendance!

Don't forget that ASTEE provides several excellent awards to its members. The Professional Development award is being offered once again to members in conjunction with McCrone Research Institute: apply to take a weeklong course tuition-free, plus up to \$500 for travel. Research awards to help fund forensic science research are also available to established scientists as well as students. Please see [the website](#) for more information about these perks, and submit your application today!

We have a couple committees with openings available, so if you are interested in becoming a more active member of ASTEE, please don't hesitate to reach out to me. This is a wonderful organization to be a part of, and it has been so rewarding to be involved with such a great community of fellow scientists. I encourage you to lean in and sign up!

Message from the President continued...

I hope you all enjoy the rest of the summer!

Cheers,



Kelly Brinsko Beckert
kbeckert@microtrace.com
Kelly Brinsko Beckert
2018 ASTEE President

Helping Out a Fellow Trace Examiner

Our friend and fellow forensic scientist Ted Bermann, Florida Department of Law Enforcement, is currently recovering from traumatic complications following colon surgery. The FDLE in Orlando and his friends and family have been contributing in different ways over the last couple of months to support him and his family. Please help spread the word about this fundraiser beyond Orlando so that we can continue to support Ted during this challenging time. Even if you cannot donate at this time, please share this with others if you can.

Please see the link below, and feel free to contact James Marano, jamesmarano@fdle.state.fl.us, with any questions.

<https://www.gofundme.com/tedbermannandfamily?ssid=1241043174&pos=1>

ASTEE Challenge Coin

ASTEE is soliciting designs for the back of the ASTEE challenge coin. The membership will vote on the design to be used, and the winning designer will receive a free ASTEE challenge coin. Please submit designs to michelle.drake@dfs.virginia.gov by August 31, 2018, and please make sure design images are in a format that can be shared with the membership.



Microscopy Courses

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Hands-on courses range from basic microscopy to specialized applications focusing on particular techniques, materials, and fields of research.

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ASTEE at a Glance – Committee Updates

JASTEE Update

JASTEE is hoping to have an issue published in the near future and is always looking for more manuscripts to be submitted for publication. The manuscripts can be original research articles, review articles of a relevant aspect of Trace Evidence, or a case study. If you sat in on an interesting presentation in Trace Evidence, please encourage the presenter(s) to consider submitting the material to JASTEE! If you have any questions, please don't hesitate to contact JASTEE Editor, Jeremy Morris, Jeremiah.Morris@jocogov.org.

Membership Committee Update

ASTEE will be holding elections in October for the following 2019 Board of Directors positions:

President-Elect (1-year term, then serves as President for 1 year): Fulfills the President's duties should the president be absent, leave office or become incapacitated. The President's duties include: presiding at meetings; conducting the business of the Society, and promoting the fulfillment of the Society's objectives.

Treasurer (2-year term): Keeps Society financial records, safeguards its funds, keeps the membership list current, notifies the membership chair of address changes, deposits all monies received by the Society in accounts approved by the Board, files the Society (Corporate) Annual Report, and submits the corporate renewal fee.

Director (3-year term): Act at the direction of the executive board (President, President-Elect, Treasurer, and Secretary) to carry out assigned tasks on behalf of the Society. Directors are voting members of the Board.

Serving on the ASTEE Board is a great way to contribute to this organization and to have a positive impact on the forensic science community. If you are interested in serving on the ASTEE Board of Directors in any of these positions, please send a photo along with a brief bio detailing your qualifications and the reasons why you would like to serve on the board to Katie Igowsky, Katherine.Igowsky@state.mn.us, by September 01, 2018. The election will take place via electronic ballot in October.

Communication Committee Update

The Communications Committee is in the process of acquiring quotes for a re-build and re-design of the ASTEE website, www.asteetrace.org. We received terrific feedback from the recent ASTEE survey, and will be carefully considering that feedback when designing the features of the new website. Examples of new functionality we hope to incorporate are: a member discussion forum, automated membership applications, automated dues payments, etc. If you have any suggestions, comments, or recommendations, please email Communications Committee Chair Daniel Mabel at asteetrace@gmail.com.

Newsletter Committee Update

ASTEE members have spoken and we are listening. Many members are interested in getting to know one another through a section in the ASTEE Newsletter. We are excited to bring you the newest section of the ASTEE Newsletter called "May We Introduce You To..." (see page 11). Keep your email contact information up to date as you may be the next member randomly chosen to participate!

Awards Committee Update

ASTEE would like to congratulate Richard Bisbing on being named the recipient of the 2018 Edmond Locard Award for Excellence in Trace Evidence. Dick Bisbing is a long standing member of the Trace Evidence community with over 40 years in the field, and he has worked tirelessly to grow the field of Trace Evidence

ASTEE at a Glance – Committee Updates continued...

through Trace Evidence forensic work, authoring chapters on Trace Evidence in numerous books, and by promoting microscopy and the forensic sciences as a whole.

ASTEE would like to congratulate Chesterene Cwiklik, the recipient of the 2018 ASTEE Research award. We look forward to hearing about your research on the impact of burial and fabric deterioration on pre-burial damaged fabric.

Wayne Moorehead was awarded the travel award to the 2018 Inter/Micro conference. Congratulations, Wayne!

Alexis Webber was awarded the 2018 ASTEE Scholarship award. Congratulations, Alexis!

Remember to get your applications in for the ASTEE 2018 Professional Development Award! ASTEE is partnering with the McCrone Research Institute to offer \$500 in travel reimbursement and the extraordinary opportunity to receive free tuition into the 2018-2019 MCRI class of your choice! Applicants for this award must be a member in good standing, and applications must be turn in to the awards committee at michelle.drake@dfs.virginia.gov by COB on September 17, 2018.

ASTEE is pleased to announce the second annual Student Research Project Award. This \$250 award is available to any undergraduate or graduate student who is pursuing a BS or higher degree in the natural sciences or forensic sciences and who is performing research in the field of Trace Evidence. The deadline for this application is December 1, 2018. Students must submit an application form, details regarding their proposed research and how it promotes Trace Evidence, and a faculty recommendation form. ASTEE had many applications for the 2017 award, and it was exciting to see all of the research being done in the field of Trace Evidence.

Application forms and past winners of these awards may be found on the ASTEE website.

Research Committee Update

A list of internship opportunities was compiled and is now available under the Research Committee section of the ASTEE website. Thank you to everyone who contributed information for their laboratory. If you have anything to change or add, please reach out to the committee via asteeresearch@gmail.com. Also reach out if you have questions, comments, visions, or are looking to join the Research Committee. Your thoughts and input are welcome.

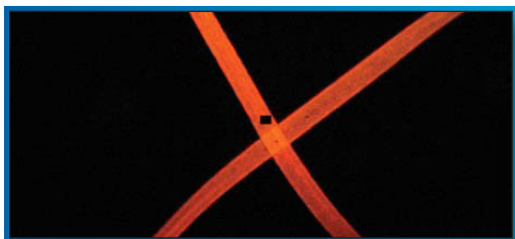
Important Dates

August 31	Deadline to submit Challenge Coin designs
September 1	Deadline to submit bio and photo if you would like to be included in the ASTEE Board elections
September 17	Deadline to apply for ASTEE Professional Development Award
October	Elections
November 5 - 8	Chemistry Scientific Area Committee meeting
December 1	Deadline to apply for Student Research Project Award
April 29 - May 3	2019 ASTEE/Southern Association of Forensic Scientists joint meeting

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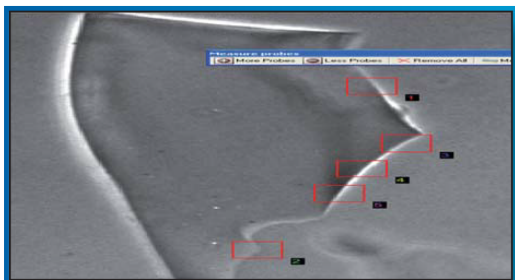
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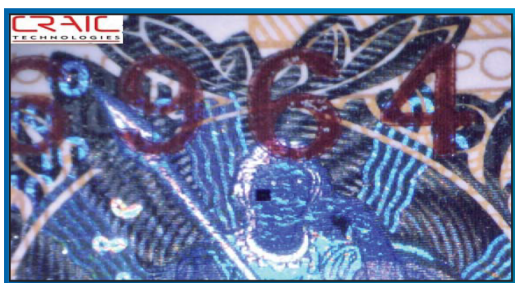
Fluorescence imaging of a nylon fiber with CRAIC's unique calibrated variable aperture.



Chromaffair paint sample using 10x magnification in reflectance, microscale shown is 50 microns.



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Glass Evidence

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Explosives

CRAIC Apollo™ Raman microspectroscopy and UV microscopy can be used to locate and identify explosives easily and accurately.

Drugs

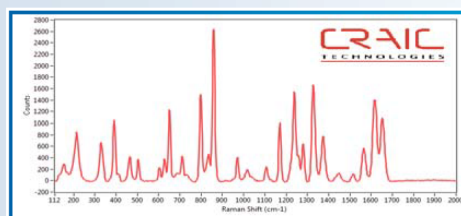
CRAIC Apollo™ Raman, UV and fluorescence microspectroscopy can be used for accurate identification of drugs of abuse.

DNA and Biological Evidence

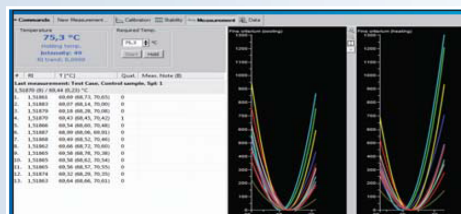
CRAIC UV microscopes can be used to identify usage of WMD materials from tissue samples. UV microscopy can also locate trace amounts of DNA and biological evidence.

Questioned Documents

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CRAIC TECHNOLOGIES

Surviving Two Daubert Hearings in One Day

The email was relatively short. It was from a local prosecuting attorney's office and stated a court notice was attached. Not a big deal, right? When I looked at the court notice, it wasn't for a jury trial but a hearing which was scheduled for two days in one week. Odd, but not really alarming until I started thinking about it later that night. It was a hearing and not a preliminary hearing. What kind of hearing?

Uh oh.

"Oh, it's a Daubert hearing," was the casually spoken response I received the next day when I called about the nature of the hearing. On what? Microscopic hair comparisons, chemical testing of unknowns, and bloodstain pattern analysis. That's right. I had less than one week to prepare for three Daubert hearings in two different forensic disciplines. Fortunately, the prosecutor decided to only move forward with the bloodstain Daubert initially. The two trace Daubert hearings would be done at a later date. It turned out, both were done on the same day. Ultimately, the judge ruled in favor of admitting testimony in both Trace Evidence areas – as well as bloodstain pattern analysis.

Although the jury trial is still some time in the future, I was asked to share thoughts from my experiences with these Daubert hearings. I suspect each Daubert hearing is different so my experience may not necessarily translate well to those in the future for other Trace Evidence examiners. So much of my experience was based upon quirks of the parties involved. Even so, there may be some things which could help other Trace Evidence examiners if a Daubert hearing looms in their future. Here's a short list of lessons I learned from this experience.

1. Expect anything to happen. I can't emphasize this enough. Some of the weirdest and mind-blowing things happened over the course of my three hearings. While being qualified as an expert, the defense asked to cross me. Pretty standard. However, the defense went straight into questions about the reliability of the science. I hadn't even given my presentation about this topic yet. The judge allowed the line of questions and I had to go off memory since the answers were buried in a PowerPoint presentation which was going to be given later. In another hearing, the defense started asking specific questions about observations I made in the case. I didn't have my report or my notes with me at the time because I didn't think they were needed for a Daubert hearing over the broader science. Again, the judge allowed the line of questions but since no one in the hearing had copies of my notes, this line of questions ended pretty quickly.
2. Don't re-invent the wheel. I was fortunate to have help from many different people as I prepared for the Daubert. Our lab's firearms section had been through multiple Daubert hearings recently and shared their PowerPoint presentation with me. This saved me a huge amount of time since I could use their approach as a template to put mine together. Additionally, SWGMAT has numerous resources available including an admissibility presentation on microscopic hair comparisons. I was able to transfer most of the relevant portions of the SWGMAT presentation into my own. Other analysts also reached out to me personally to share their own presentations.
3. Know the arguments of the opposing side. This may seem obvious but take the time to read materials which you would expect for the defense to bring up and be prepared with answers to the obvious questions. In addition to the *NAS* and *PCAST* report sections relevant to microscopic hair comparisons, I also read other articles about issues individuals had with hair comparisons. In the end, the only document the defense brought up was the *NAS* report.
4. Help out the prosecutor. Not only was this my first time going through a Daubert hearing on trace examinations, it was also the first time for the prosecutor. I suspect this will be the case for any other forensic scientist presented with a Daubert hearing, especially Trace Evidence examiners. Since you are the expert, help out the prosecutor by providing them with an order of questions to ask – along with

Surviving Two Daubert Hearings in One Day continued...

your answers. My standard approach for trace and bloodstain testimony of any kind is to email the prosecutor a step-by-step list of questions (including voir dire questions) along with my answers. If I'm using a PowerPoint presentation, I'll include the slide number for each question. I know this may seem excessive but it accomplishes two things. First, it provides the specific questions and the specific wording for these questions. Since the odds are your prosecutor hasn't gone through a Trace Evidence Daubert before, they don't know what to ask. Help them out. Yes, prosecutors still go "off script" even when I provide questions; however, it still helps keep them relatively focused. Second, by providing the answers it gives you time to think about the exact wording which you want to use to address each question. I use these as my testimony-prep study guides to remind me of how I want to word a specific answer.

5. Know your material inside and out. This is probably just a personal quirk of mine, but my testimony preparation involves memorizing as much as I can about my report and my notes as possible. I took the same approach for the Daubert hearings. I tried to memorize all of the studies I would discuss and the results of those studies. I took time to remember the statistics, the dates of publication, the authors, the journals, and specific statements in the discussion to help explain the results. I do this partly because of the first point above – expect anything. If I know my material inside and out, I should be prepared for questions about my material at any point – even if an attorney jumps the gun. Second, I just don't like asking to refer to my notes. I'd rather have an immediate answer than to take time flipping through a bunch of documentation while all the eyes in the court are resting on me. Even so, I'll generally have copies of my notes (and relevant research papers for Daubert hearings) with me on the stand in case I completely draw a blank.

There were other things which I will take away from my "Double-Daubert Day" but these five are the big ones. If you happen to be asked to testify in a Daubert hearing, I hope the lessons I learned will be helpful in your own preparation.

Jeremiah Morris
Johnson County Sheriff's Office Criminalistics Laboratory

Reggie's Trivia Sampler

Words that start with "micro"

1. An alcoholic drink typically produced in small batches
2. A device used to magnify reduced images of archived document pages
3. Group of islands within the Pacific Ocean

Foods

4. What pigment is often added to foods such as ranch dressing and skim milk to make them appear whiter?
5. What popular kids' restaurants were created by the inventor of the Atari video game system, Nolan Bushnell?
6. What common kitchen ingredient was blasted against the Statue of Liberty when it was cleaned in the 1980s?

The British Royals

7. What title was bestowed on the newly married Prince Harry and Meghan Markle?
8. King Edward the 8th famously abdicated the throne in 1936 so that he could marry which American divorcée?
9. Who was the first royal bride to omit the word "obey" from her vows?

Famous inventors

10. Which two inventors famously and bitterly feuded over AC versus DC in the "war of currents?"
11. This inventor was inspired to create this communication system which bears his name after receiving a letter by horse messenger about his wife's failing health too late to make it to her bedside before she died.
12. Stephanie Kwolek invented this high strength fiber while working at DuPont in 1965.



OSAC, What's New?

March 13th – 16th was the latest gathering of the Chemistry Scientific Area Committee, which includes the Trace Evidence Subcommittees. The meeting took place in Chicago, IL, and was the first of two anticipated meetings for 2018. The second is scheduled for November 5th – 8th, 2018, in Houston, TX. More terms are ending this year leaving positions on some subcommittees vacant. If you are interested in applying, ensure you have filled out an application (<https://www.nist.gov/forensics/osac-application.cfm>). Now, for some subcommittee-specific updates:



The following four documents have been added to the OSAC Registry from this subcommittee: (1) ASTM E2926 mXRF of glass (added July 2017); (2) ASTM E2927 LA-ICP-MS of glass (added May 2018); (3) ASTM E1610 Paint Guide (added June 2018); and (4) ASTM E2937 IR of paint (added June 2018). They anticipate two additional standards to follow soon: E3085 IR of tape and E2330 ICP-MS of glass. Check the following website for their latest status: <https://www.nist.gov/topics/forensic-science/organization-scientific-area-committees-osac/osac-registry/standards-under>.

Several other documents remain in the public comment or comment adjudication phase. The inter-laboratory glass study has been completed, meaning there will soon be language added to better address precision and bias for refractive index measurements of glass. Thank you to all of the participants for your contribution! A validation-type test using the significance assessment document is still in the works. There is still time to participate, so if you are interested, please contact Diana Wright (dmwright@fbi.gov). Separate training documents have been drafted for hair, paint, and tape and are making their way through the ASTM process along with several fibers documents that are up for their 5-year review. The hair task group has also formally responded to the NIJ's Best Practices for Sexual Assault Investigation document.



This subcommittee has three new documents navigating the ASTM process: a terminology document for examination of fire debris, a terminology document for examination of explosives, and a new procedure for headspace concentration onto an adsorbent tube for fire debris samples (similar to what is commonly performed in Europe). Three standards are in the process of being revised through ASTM balloting: E1412 (charcoal strips); E1413 (dynamic headspace) and E1618 (GC-MS of fire debris). Note that the suggested changes

to E1618 are not earth-shattering but include adding more examples of known products to Table 1, and removal of target compound chromatography (TCC) as a method of data interpretation (no one has published a paper using TCC in over 20 years and various attempts to validate the process have been unsuccessful). A fourth standard is also being revised, but based upon timing, a more thorough assessment will have to be performed before submitting revisions for E2451 (extract preservation). ASTM E2881 (vegetable oils and fats) recently navigated through the ASTM revision process, and a new revision is available. The subcommittee continues to work on several documents, including but not limited to, a Guide for Ignitable Liquid Analysis, a QA/QC Guide for Ignitable Liquid Analysis, a Guide for Intact Low Explosive Material, a QA/QC Guide for Explosives Analysis, a new Validation of Fire Debris Methods, and Report Writing Standards.

OSAC, What's new? continued...

Gunshot Residue

The Gunshot Residue subcommittee spent much of the last meeting finalizing edits to ASTM E1588 (GSR Analysis by SEM/EDS) and the paperwork necessary for Registry consideration. Work began on cataloging a list of potential sources of uncertainty for both the collection and analysis of GSR in an attempt to address error rate. They are attempting to establish an uncertainty budget for as many of these potential sources as possible. The GSR Report Writing document, Terminology document, Training Guide, and Testimony and Ethics documents are all in various stages of revision with hopes of getting each through ASTM soon.

Geological Materials

The GEO subcommittee completed a draft of a Guide for the Collection of Soils and Other Geological Evidence for Criminal Forensic Applications. This document will be submitted to ASTM in the near future. Considerable progress was made on several other documents during the March 2018 in-person meeting, specifically on a Guideline for X-Ray Diffraction of Soils and Geological Materials and a Guideline for the Analysis of Color in Soil Evidence. There were three new members added to the GEO subcommittee this past year, specifically Dr. Michael Smith (Federal Bureau of Investigation), Dr. Andrew Laurence (U.S. Customs and Border Protection), and Heather Lowers (U.S. Geological Survey). They bring expertise in statistics, palynology, and geochemistry, respectively. Ethan Groves (Microtrace Scientific LLC) was also added to this subcommittee as an affiliate. Additional information related to planned standards and other activities can be found at the following website: <https://www.nist.gov/topics/forensic-science/geological-materials-subcommittee>. If you are interested in contributing to this subcommittee, please contact Andrew Bowen (AMBowen@uspis.gov).

News You Can Use...

Do you have a contribution for the News You Can Use section in a future issue? As a reminder, this section is meant to include information that may be useful for casework but is not research. For example, do you have information from industry that may impact what we see? Or have you seen something unusual in casework? Do you have a special trick or technique? All of these and more can be included! Please forward any contributions to kiersten.laporte@dps.texas.gov.

Just as a reminder, these are the types of topics that have been included in previous News You Can Use sections:

Issue	Topic
February 2016	Two forensic online groups with forums for members to troubleshoot, collaborate, support, and share information
January 2017	How to access the SWGMAT documents on ASTEE's website
August 2017	XRF online forensic group forum
January 2018	New 'Quadcoat' terminology

May We Introduce You To... **NEW!**

May We Introduce You To... *Stephanie Freiwald (maiden name: Sliwa)*

Occupation: Forensic Scientist in the Trace Evidence Section of the Texas Department of Public Safety Austin Crime Laboratory

What Trace Evidence sub-discipline(s) are the focus of your work? Currently signed off to work casework in Hair, Shoe/Tire/Fabric Impression, Glass, and Physical Comparison/Physical Match analysis.

What is your favorite quote? "Failure will never overtake me if my determination to succeed is strong enough." -Og Mandino

Who has been a mentor to you and how have they helped you? While I have been working with DPS for about 4 years, my experience started when I had the opportunity to work for Skip and Chris Palenik at Microtrace, LLC as an intern and a Laboratory Technician. The people that work at Microtrace are some of the most amazing people I have ever met (both in their knowledge base and in their overall personalities) which is no wonder when you look at the amazing bosses they have. I don't even know if these two individuals know how much of an influence they have had on me. While I learned many things from them, one of the biggest takeaways has been to always continue questioning and to never stop educating myself, there is always more that can be learned. I am so grateful they gave me the opportunity to work for them and thankful that I had as much time as I did with them, because I know that I would not be where I am today if it was not for them. So Chris/Skip if you are reading this, thank you, I am forever grateful!



Tell us something that would surprise others about you: For those who don't know me, something that often surprises others to learn about me is that my now husband and I met online and dated long distance for 6 ½ years where we only got to visit each other 4 times for a total of 1 ½ months out of that 6 years, before we finally got to live in the same city (Austin). See long distance relationships can work out, this year will be 10 years of being together!

May We Introduce You To... *Kari Pitts*

Occupation: Forensic Chemist, ChemCentre (West Australian State Government lab)

What Trace Evidence sub-discipline(s) are the focus of your work? Fibres, textile damage, paint, glass, gunshot residue, lubricants, ignitable liquids, soils and minerals, personal defence sprays and all those fun 'miscellaneous' cases.

What is your favorite quote? 'Life is uncertain, eat dessert first' or, on a more serious note, 'I'd take the awe of understanding over the awe of ignorance any day'

Who has been a mentor to you and how have they helped you? My section leader Pete, he has supported my plans and encouraged me to be the best I can be; I'm still working on it.

What do you like to do in your down time? I love spending time with my husband and kids and getting outside in our fantastic Perth weather, but at the moment, I am part of the team organising the Australian and New Zealand Forensic Science Society's 24th Symposium- check out ANZFSS2018.com

What is the most interesting place you have been? I was born in a mining town called Paraburdoo and travelled around Australia a lot as a kid and we have some fascinating places down under. Two of my favourites from a geology perspective are Wave Rock and the Pinnacles.



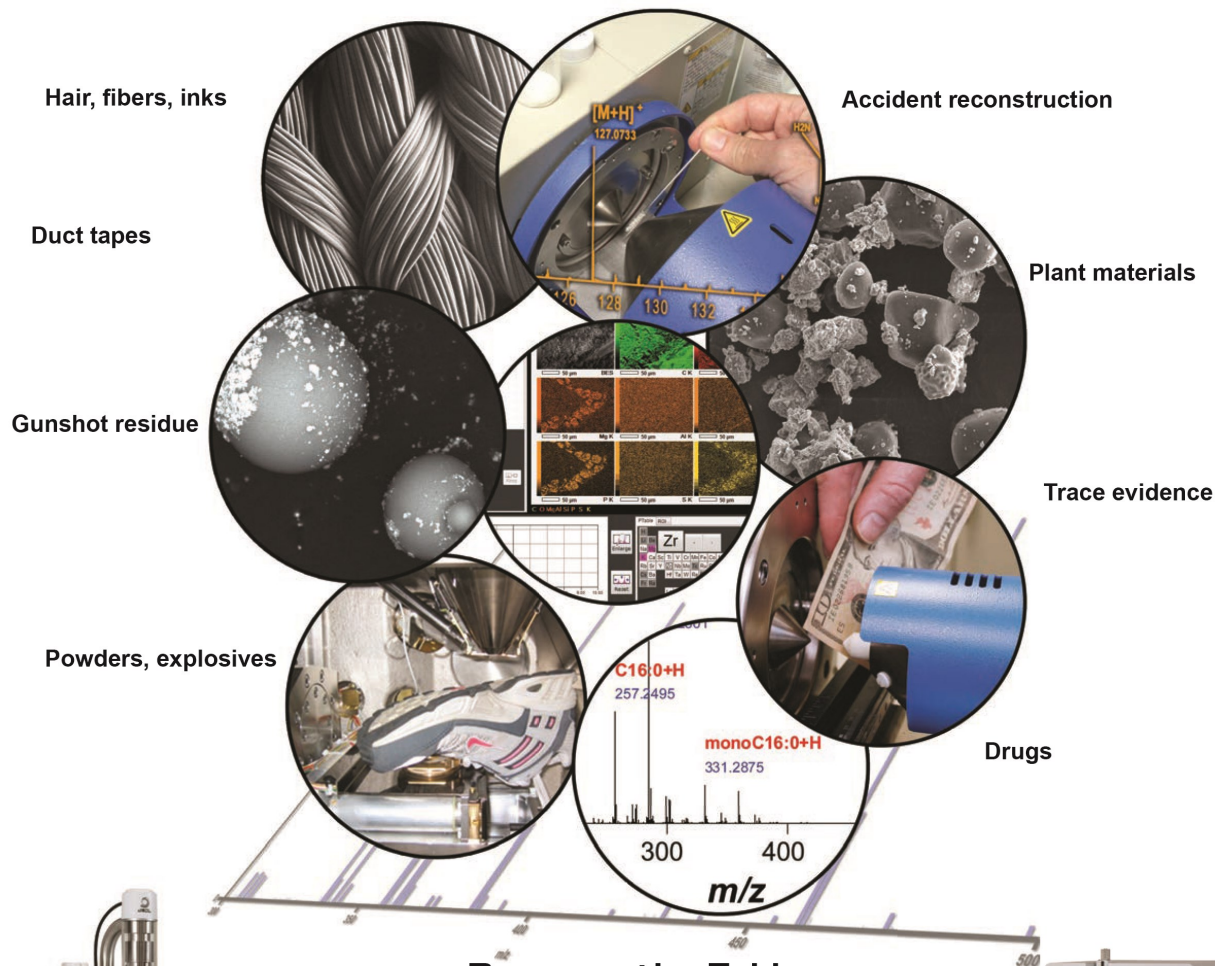


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InterMicro Reception at Reggie's



Answers to trivia questions:

Question Number	Answer
1	<i>Microbrew</i>
2	<i>Microfiche</i>
3	<i>Micronesia</i>
4	<i>Titanium dioxide</i>
5	<i>Chuck E. Cheese's</i>
6	<i>Sodium bicarbonate (100 tons!)</i>
7	<i>The Duke and Duchess of Sussex (has a nice ring to it, don't you think?)</i>
8	<i>Wallis Simpson</i>
9	<i>Diana Spencer (as did Kate Middleton and Meghan Markle)</i>
10	<i>Nikola Tesla and Thomas Edison</i>
11	<i>Samuel Morse</i>
12	<i>Kevlar</i>



WWW.ASTEETRACE.ORG