Dear fellow ASTEE members,

It has been a very busy time for the organization since the last newsletter reached you. One of several changes is that the newsletter will now be edited by Andy Bowen. The new officers and various committee members have been hard at work behind the scenes on a number of important issues. We had a very successful social event on February 23rd in Atlanta during the AAFS annual meeting, and have yet another planned for this July in Chicago. The AAFS dinner was well attended and those members who were able to make it to Max Lager’s Brewery were treated to a delicious spread and some excellent beers. We should all thank Jeff Dake and Chris Taylor from USACIL for their hard work putting this event together. We would also like to take this occasion to thank our generous sponsors, CRAIC Technologies, Gateway Analytical, and Foster and Freeman, for making the event possible. As usual, Pete Diaczuk was gracious enough to serve as our unofficial photographer at the event (please see his photos on pages 12-13).

ASTEE plans to hold periodic social events in conjunction with regional meetings in the summer or fall in the alternate years of the Trace Evidence Symposium. Hosting these events, with the support of our valuable sponsors, allows ASTEE to reach our members throughout the country. We all face limited training budgets and heavy caseloads, but these are tremendous opportunities to learn from others in the field, share your knowledge with your peers, and get to know your fellow ASTEE members. We strongly encourage you all to make every effort to attend these invaluable events.

The editor of the ASTEE journal, Chris Bommarito, is hard at work on the next edition of the journal with help from his editorial staff. If you presented at the 2011 Trace Evidence Symposium or have anything that might be of value to the trace evidence community, please consider submitting it to the ASTEE journal. Everyone in the field benefits when we share our knowledge and ideas with each other.

(Cont. on Page 2)
ASTEE at a Glance (Cont. From Page 1)

Inter/Micro 2012 with ASTEE Social Event

It is our pleasure to announce that ASTEE will host its next social event in conjunction with Inter/Micro 2012 on Tuesday, July 10, 2012 from 6:30 to 9:30 PM. Chicago is a great place to support our membership in the Midwest and we hope you can make it to Inter/Micro meeting and join us for this event. ASTEE President Chris Taylor has reserved space at a roof top bar, Reggies Rock Café, on the south side of Chicago. Along with its award winning barbecue, wings, and beverage selection, Reggies offers live rock music. We also encourage our membership to support Inter/Micro with presentations. Wednesday is devoted to forensic science and trace materials. If interested, Inter/Micro’s abstract submission process can be found at http://www.mcri.org/home/section/101-759/inter-micro-2012. The abstract submission deadline was just extended until May 15th, so get your paper in soon. More details will follow and we will send out a solicitation to members to see how many will attend. This will be a great opportunity to meet a variety of microscopists that not only examine forensic trace evidence, but diverse types of trace materials as well. Inter/Micro conference is a more intimate event than many of the other professional meetings, making it one of the best places for meeting other scientists and building professional relationships. The workshop this year will be taught by one of the pre-eminent optical mineralogists in the world, Dr. Mickey Gunter. We hope to see you there.

Trace Evidence Symposium 2013

The National Institute of Justice’s (NIJ) new Forensic Science Technology Center of Excellence, Research Triangle Institute International (RTI), has begun planning the 2013 Trace Evidence Symposium. RTI was awarded a grant from NIJ to form the new Forensic Science Technology Center of Excellence and support forensic science service providers and the forensic science community with events like the Trace Evidence Symposium. They are looking at early August as the time frame, and actively searching for potential sites. It is wonderful that NIJ continues to support forensic science and the trace evidence community. Check the NIJ and ASTEE websites and watch for updates in the ASTEE newsletter (for more information and future announcements for abstracts for papers, posters, and workshops).

(Cont. Page 4)
YOUR SOLUTION FOR TRACE EVIDENCE

Advanced technology solutions for fibers, paints, glass, polymers, explosives, drugs and more. Call us today to learn how we can help you solve your case quickly and accurately.

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- UV-Visible-NIR Fluorescence Spectra
- Raman Microspectroscopy
- UV-Visible-NIR Polarization Spectra
- Glass Refractive Index
- Glass Color Spectra
- UV-visible-NIR Microscopic Imaging
- UV-Visible-NIR Fluorescence Imaging
- UV-Visible-NIR Polarization Imaging

For more information, call 877.UV.CRAIC or visit our website at www.microspectra.com

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ASTEE at a Glance (Cont. From Page 2)

2012 ASTEE Awards Recipients

It is only appropriate that we recognize all of the hard work that Vincent Desiderio put in over the past several years as the founding president of ASTEE. Those of you who were able to join us for the ASTEE dinner during the AAFS meeting had an opportunity to thank Vinny in person. The incoming president, Chris Taylor, honored Vinny with a well-deserved token of appreciation in the form of a beautiful crystal microscope. At the same dinner, Thomas Hopen was presented with the second annual Edmond Locard Award for Excellence in Trace Evidence. Those of us who know Thom have shared similar experiences of his tremendous generosity with his time and expertise. His willingness to share his vast knowledge with so many others in the field of trace evidence made him a perfect recipient for this prestigious award. We would also like to congratulate Cady Lancaster for receiving the 2012 ASTEE Scholarship Award. She certainly appears to have a bright future in forensic science.

Volunteers Needed

While Vinny’s leadership will be missed, ASTEE is in good hands and is moving forward with the new officers as introduced in the last newsletter. However, despite our very capable leaders, ASTEE is an ambitious organization and in order to accomplish all our goals volunteers are needed. Specific needs that ASTEE is looking to meet include the following: one individual that may know about the tax exempt process or is willing to learn how ASTEE can complete this process; one volunteer to work with two other members to help complete the Trace 101 project for the website; and two volunteers to help compile a list of trace evidence resource links and suggest a user friendly layout with search features using these sources. We strongly encourage anyone who is interested in donating their time to contact the ASTEE President, Chris Taylor. Many thanks to the ASTEE members who have already agreed to donate their time and knowledge to further the goals of the organization.

ASTEE Training Survey

The education committee has put together a survey on the training needs of the membership. Please think about what training you think would be beneficial to our membership that is not already offered by another organization. If you have not completed the survey, you can access it at: http://www.surveybuilder.com/s/JSbOfx44YAA. The education committee will compile the results and utilize the suggestions to provide ASTEE sponsored training events in the future.

If you are interested in helping to teach a workshop please contact the education committee chair (Sandra Koch). Additionally, the committee is working to assemble a list of training resources and courses currently available to examiners. This list will be added to a members-only portion of the website.
Congratulations to Thom Hopen on his receipt of the 2012 Edmond Locard Award for Excellence in Trace Evidence
Congratulations to

Cady Lancaster

on her receipt of the

2012

ASTEE Scholarship Award

DNA HANDLES ONE MOLECULE, WE TAKE CARE OF THE REST
Bridging the Service Gap—Beyond the Expected

- Examination of multiple trace evidence types including:
  - Animal and Human Hair
  - Condom Lubricant
  - Glass
  - Gunshot Residue
  - Paint
  - Synthetic and Natural Fibers
  - Unknown Materials
- Forensic Consulting for Cold Case Reviews and Crime Scene Processing
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Reliable Support to Ease Casework Demands

With increasing workloads, decreasing budgets, and growing backlogs, it's becoming more challenging to get work completed on time and on budget. Trust Gateway Analytical to be an extension of your own capabilities. Whether you need specialized expertise or equipment, conventional or innovative lab services or guidance on a cold case, our forensic testing and consulting services produce accurate, legally defensible results that can help ease your casework demands.

With more than 15 years of experience, you can rely on our expertise in trace evidence analysis, criminal and civil case review, innovative forensic analysis, and more.
**Tricks of the Trade**

*Using the Backing from Labels as a Tape Substrate*

Thomas J. Hopen*

I have written a number of "Tricks of the Trade" articles over the years and several of them were based on ideas from other individuals that were so good I felt the need to pass them on to other examiners. Again this is one such article and I have to give credit to Forensic Scientist Chris Bommarito, Forensic Testing Services, for making me aware of using the backing from peel-off labels as a substrate when preserving tape samples. Routinely, I need to preserve a section of tape before fingerprinting or for my reference collection. Traditionally, I have used heavy duty sheet protectors made of polypropylene or sometimes a glass slide as substrates for the preservation of tapes. When I had enough sample, I placed a second piece of tape on top of the first piece that had been placed on a substrate. However, after a period of time some tapes were difficult to remove intact from the substrate, or from the first piece of tape, for examination and analysis. I have found this to be especially true for some duct and strapping (filament) tapes. On the other hand, the use of the paper backing on labels (which is normally discarded once the label is removed) seems to be a great substrate to put tapes on for easy removal, examination, and analysis at a later date. The paper backing is coated with a thin layer of silicone that aids in the removal of the label and, in our case, the removal of an intact piece of tape (Figure 1). I have tried the backing on FedEx®, USPS, and Avery® address labels and, so far, all have worked equally well. Thus far, I have not had any problems removing the tape from the backing at a later date, or any interaction between the tape adhesive and the backing that would cause a chemical alteration of the tape adhesive, but both aspects are still under investigation. However, they may not be suitable for use with silicone adhesive tapes. Some of you may already use label backings for a tape substrate and it would be interesting to hear any pros and cons you have encountered with this technique. Ask the people who do the shipping in your laboratory to start saving the backing of labels for you. Think of it as recycling since the label backings are not being discarded in the trash.

![Figure 1](image)

Figure 1. (A) The exposed backing after the FedEx® address label has been removed, and (B) the same backing bearing pieces of duct tape after the surrounding paper border has been removed. Note how easily the tape peels off.

*ATF Forensic Science Laboratory, 2600 Century Parkway, NE, Suite 400, Atlanta, GA 30345. thomas.hopen@atf.gov*
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Absorbance Microspectroscopy of Colored Electrical Tape used in Improvised Explosive Devices

Dr. Jim Thorne*
Copyright 2006 CRAIC Technologies

Introduction
An improvised explosive device (IED) is the formal name for explosive devices, often used in unconventional warfare by guerrillas or commando forces in a theater of operations. An IED typically consists of an explosive charge, a detonator and an initiation system. IEDs are extremely diverse in design, and may contain many types of initiators, detonators, and explosive loads.

A common element to many IEDs is the use of colored electrical tape to organize the electrical wiring. Microspectroscopy can be used to analyze this tape in both exploded and unexploded devices. Detailed spectral information about the pigments and dyes used to color the tape is recovered from the samples. This technique also has the advantage of being non-destructive and requiring minimal sample preparation. The purpose of this paper is to detail the technique and show some sample results.

Experimental and Results
Five colored electrical tape samples were prepared for absorbance microspectroscopy by attaching them to a quartz slide, which provided a flat even surface for analysis. The five colors were blue, green, yellow, red, and white. The tape dimensions were 1.2 cm wide and 0.18 mm thick.

The 20/20 PV™ microspectrophotometer from CRAIC Technologies is the perfect tool for this type of analysis. This instrument is designed to detect small spectral changes in microscopic samples in the ultraviolet (UV), visible, and near infrared (NIR) regions of the electromagnetic spectrum. The 20/20 PV™ features a scientific grade CCD array detector, thermo-electric cooling, high spectral resolution, long-term stability, low noise, and the ability to acquire transmission, reflectance, and fluorescence spectra of samples as small as 1 x 1 microns.

For each absorbance measurement 50 scans were averaged, the sampling area was 10 by 10 microns, and the spectral range was 200 to 900 nm. The reference was acquired through an open area on the quartz slide. Figure 1 shows the absorbance spectra of all five colored samples.

* 948 N. Amelia Avenue San Dimas, California 91773 USA  www.microspectra.com
T: +1.310.573.8180   F: +1.310.573.8182
Each of the blue, green, yellow, and red spectra shows their distinct color characteristics in the visible (400 to 700 nm) wavelength range. For instance, the spectrum for the red tape shows that it absorbs most light in the visible region except for the red end. Each of these four colors also share similar spectral feature in the UV region below 400 nm. In this same region, the white tape shows a sharp increase in absorbance to levels undetectable by the instrument below 370 nm. This is similar to how glass absorbs most light below 350 nm. In the NIR region above 700 nm, the blue and green spectra show some distinct spectral peaks and valleys, whereas the other spectra show gradually decreasing absorbance values.

**Conclusion**

Using a 20/20 PV™ microspectrophotometer, it is simple to non-destructively acquire absorbance spectra from colored electrical tape. The instrument yields high quality UV-visible-NIR spectra which gives information about the dyes and pigments used in the tape. This is a valuable technique for examining trace evidence from IEDs.
2012 AAFS Annual Meeting
2012 AAFS Annual Meeting
Modular trace evidence analysis system

- Fluorescence Imaging
- Raman spectroscopy
- GRIM® Glass RI measurement
- Image processing
- UV Micro-spectroscopy

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The fFTA is a powerful and flexible multifunctional system that provides the crime laboratory with a range of analytical facilities using a single microscope and PC.

Built around the Leica DM2500 laboratory microscope the modular design of the fFTA allows the end user to build an instrument that meets their own specific laboratory requirements with the option of retro-fitting new modules to expand the system's capabilities when required.

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Innovation in Trace Evidence Analysis
by foster + freeman
Improving the Quality of Forensic Evidence

Laser Induced Breakdown Spectrometer

Versatile Foster + Freeman ECCO adds LIBS to the forensic examiner's arsenal.

ECCO is a new turnkey system from Foster + Freeman designed to give elemental analysis of trace evidence such as glass, metals, paint, fibres, tapes, minerals and fillers, etc. as well as rapid screening of GSR by laser induced breakdown spectroscopy (LIBS).

LIBS is a relatively new technique for elemental analysis which offers significant advantages in speed, sensitivitiy and cost effectiveness over other processes such as XRF, SEM, and mass spectroscopy.

Elemental comparisons with ECCO are fast and simple to perform, require minimal sample preparation and give immediate read out of the major, minor and trace elements down to concentrations of low parts per million.

- Automatic identification of elements
- Casework and research modes of operation
- Dedicated software for routine analysis
## Validation of Annealing Temperature Thresholds in an ISO World

### Experimental Design

The experiment was designed to test the effect of annealing temperature on the properties of glass. The glass was annealed at various temperatures ranging from 0°C to 1,000°C. The properties of the glass were measured before and after annealing.

### Results

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### Summary

The experimental results show that increasing the annealing temperature significantly improves the properties of the glass. The optimal annealing temperature is 1,000°C for this particular type of glass.
ASTEE

under Cooperative Agreement 2010-DN-BX-K264
Funded by the National Institute of Justice (NIJ)

This project was funded by the National Institute of Justice (NIJ), and the opinions, findings, and conclusions or recommendations expressed in this product do not necessarily reflect those of NIJ.

The workshop is sponsored by the National Institute for Standards and Technology and the Florida Institute of Forensic Sciences.

Each class will be limited to 12 students.

The workshops are sponsored by the National Institute for Standards and Technology and the Florida Institute of Forensic Sciences.

Workshop Application

The workshops are sponsored by the National Institute for Standards and Technology and the Florida Institute of Forensic Sciences.

Learning Objectives
**Elemental Analysis with Focus on Information of the Evidence**

November 12th-14th, 2012

Forgis Examination and Comparison of Paint, Tapes, and Adhesives

Forensic Examination and Comparison of Glass Evidence

May 14th-15th, 2012

Mass Spectrometry

Program Description

Purdue University in West Lafayette, Indiana

Each workshop will be offered for one week and will include lectures as well as hands-on laboratory-based exercises at the campus of Chemistry and Forensic Science Center. The workshops will provide a comprehensive introduction to forensic science, focusing on specific areas of interest.

**Tip:** Read the edn.
ASTEE Membership Application

DIRECTIONS:
1. All information supplied on this form WILL be verified.
2. Type or print in ink and check your preferred mailing address.
3. Attach a copy of your curriculum vitae/resume and lists of applicable forensic course work to this form.
4. Have two (2) current ASTEE members propose and second your membership application.
5. Enclose a check or money order (made payable to ASTEE), for the non-refundable $3.00 application fee.
6. Mail application and fee to the Treasurer (see address below).

Name:
Agency:
Title:

Preferred Mailing Address: □ HOME □ BUSINESS

Business Phone: ( ) EXT. ________ E-mail Address:

Education and Experience: (attach Curriculum Vitae/resume and a list of applicable forensic course work)

Please select any disciplines in which you actively conduct analysis/examinations.

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<th>Impression Evidence</th>
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<td>Physical Matches</td>
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<td>Fire Debris</td>
<td>Hairs</td>
<td>Soil</td>
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My signature acknowledges that all information on this form is accurate to the best of my knowledge.

Signature of Applicant Date

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PROPOSAL FOR MEMBERSHIP:

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<td>6000 Ammendale Road</td>
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</table>
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