

Midwest Forensics Resource Center

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To view past issues of the MFRC Newsletter, please visit www.ameslab.gov/mfrc and log into Partners Web. If you need help accessing the Partners site, please contact the MFRC office at 515-296-MFRC or email mfrc@ameslab.gov.

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News

Happy New Year!



Panel discussion led by Bill Marbaker at the 2012 Annual Meeting held in Columbus, OH.

USACIL:

A project funded by the Department of Defense through USACIL is in development at the Midwest Forensics Resource Center for measuring false positive and false negative error rates in firearms examinations of fired cartridge cases. Participants will include practicing firearms examiners who are AFTE members or work in ASCLD member labs. Please consider participating in this study when the invitation comes to you or your laboratory.

Education:

If you have input or suggestions for educational efforts, please contact Todd Zdorkowski at 515-294-5640 or zdorkowski@ameslab.gov.

MFRC/Midwest Crime Lab Directors

Annual Meeting:

The MFRC/Midwest Crime Lab Directors meeting is tentatively scheduled for June 4-5, 2013 at the Louisville Marriott Downtown in Louisville, KY. We are currently working on plans for this meeting and have submitted the conference approval request to the National Institute of Justice. When we receive final approval we will send out invitations and registration information.

If you have any questions about the annual meeting, please contact Melinda Schlosser at 515-296-6372 or via email at mschlosser@ameslab.gov.

Casework Assistance

The MFRC currently receives a constant level of requests for referrals for services. We welcome these inquiries, as well as any requests for other types of consultation or analyses. In addition to providing referrals to existing services, this program is designed to provide free access to new expertise and instrumentation.

If you would like more information, or to discuss the casework assistance program, please let us know. We would be happy to discuss

the program, answer any questions you may have, and walk through the process with you. Stan Bajic, the Casework Assistance Coordinator, can be reached at 515-294-2086 or via email at sbjic@ameslab.gov.



Casework Assistance by the MFRC

**Second edition
of Fast-GC
discussion to be
held sometime in
February 2013.**

Training

Training and Technology Transition during the last quarter:

The MFRC collaborated with the Forensic Technology Center of Excellence to webcast a technology transition discussion on Fast GC and Hydrogen. It was entitled "Gaining Speed with "Fast GC": A Practitioner's Perspective," and was held December 19th, 2012.

The goal of this event was to provide the audience with working forensic scientists' perspectives on Fast-GC. Midwestern panelists spoke from firsthand experience about what has worked and what hasn't in the real world of forensic laboratory operations. It was offered free-of-charge and documentation of attendance was provided.

The panelists were:

- Dave Sincerbeaux (Drug Chemistry), Idaho State Police Forensic Services Division
- Leah Macans (Toxicology) and Birjees Kauser (Drug Chemistry), Wisconsin State Crime Laboratory-Milwaukee

- Shannon George (Toxicology), Illinois State Police R&D Lab
- Jason Stenzel PhD (Drug Chemistry) Sioux Falls SD PD Crime Laboratory

The host was Peter Stout (Toxicology), a senior forensic scientist at RTI, Center of Excellence. Over 80 participants logged-in. Most were from sites around the US, but several logged-in from overseas as well.

Upcoming Training Events:

No new classes are currently scheduled.

The Forensic Technology Center of Excellence currently projects a second edition of the Fast-GC discussion to be held sometime during February. Discussions are also underway to organize and hold a technology transition webcast on a new topic by the end of March.

Announcements of future Training and Transition webcasts will be made via email and will be visible on the MFRC homepage and detailed in the Training and Transitions section.

R & D Programs

We have printed the 2012 Research and Development Program Summary booklet and recently distributed copies to MFRC stakeholders and partners. The following projects are highlighted in the 2012 R&D Program Summary booklet:

"Chemical Characterization of Emerging Designer Drugs" (Jeremiah Morris, Johnson County Sheriff's Office Crime Lab). This project is targeted for completion later this month. It monitors and analyzes emerging designer drugs to provide forensic drug chemists with the analytical data necessary to identify synthetic cannabinoids and substituted cathinones. Preliminary research findings were presented at MAFS in 2012, and to date a number of manuscripts have been submitted for publication in the Journal of the Clandestine Laboratory Investigating Chemists Association.

"Development of a New Model to Study Firearms Related Blood Spatter" (Michael Taylor, Institute of Environmental Science and Research, New Zealand and Kevin Winer, Kansas City Police Crime Lab). This project is slated for completion in May 2013. It targets the design and construction of a physical model to simulate the formation of gunshot-related blood spatter to answer case-related questions. The model will be tested in New Zealand later this month. No publications or presentations have resulted from the project to date.

"Random Probability Match Procedure for Statistical Comparison of Mass Spectral Data" (Ruth Waddell-Smith, Michigan State University; Jack Hurd, Alaska Scientific Crime Detection Lab, and Garth Glassburg, Northeastern Illinois Regional Crime Lab). This project is scheduled for completion in March 2013, and targets the development of a method to determine the significance of associations in the comparison of evidence. Preliminary research findings were presented at MAFS in 2012, with final project findings to be presented at AAFS in 2013. A number of manuscripts have been submitted for publication, including one on Salvia plant species in the Journal of Forensic Sciences.

"Rapid Arson Sample Analysis Using DART Mass Spectrometry" (John McClelland, U.S. DOE Ames Lab-Iowa State University; David Tebow, Minnesota Bureau of Criminal Apprehension and David Linketter, Iowa Department of Public Safety). The project researches the use of a new ionization method to determine the composition of an arson sample without sample preparation and extraction steps. It establishes proof-of-concept.

"Fast Gas Chromatography Capabilities in Drug Identification" (Chuck Cornett, University of Wisconsin-Platteville and Leah Macans, Wisconsin State Crime Laboratory-Milwaukee). This project examines the capabilities of Fast GC to improve the separation and detection of scheduled

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Training and Professional
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Summary

November 2012

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R & D Programs Continued

compounds. It also investigates the use of hydrogen instead of helium as the carrier gas of choice in drug analysis. A discussion board was created specific to Fast GC and hydrogen use in forensic applications. The URL for this board is:

<http://fastgc-hydrogen.proboards.com/index.cgi>.

“Degradation in Chromosomal DNA Assessed Using PCR Amplification and Capillary Electrophoresis” (Robert Allen, Oklahoma State University and Byron Smith, Tulsa Police Dept. Crime Lab). The project establishes parameters enabling Quantitative Template Amplification Technology (QTAT) assay to reliably identify DNA samples that are sufficiently degraded to require specialized testing methods to produce a DNA profile. The QTAT assay is currently used by the Tulsa Police Department Forensic Laboratory.

“Shape Measurement Tools in Impression Evidence: A Statistical Approach” (Mary Bush, State University of New York-Buffalo; David Sheets, Canisius College and Glenn Langenburg, Minnesota BCA). This project investigates the use of a shape change measurement technique called geometric morphometric analysis to explore the principal tenants of impression evidence. A manuscript has been submitted for publication in the Journal of Forensic Sciences.

“Application of Multivariate Statistical Procedures in Fire Debris Analysis: Investigating Matrix Interference Effects and Weathering of Ignitable Liquids on Association of Ignitable Liquid Residues to Neat Ignitable Liquids” (Ruth Smith, Michigan State University and Troy Ernst, Michigan State Police). The project develops a methodology to associate ignitable liquid residues to the corresponding neat ignitable liquids in the presence of matrix interferences and weathering effects. Manuscripts have been submitted for publication in the Journal of Forensic Sciences and in Forensic Science International.

The project highlights provide a description of the new technology or tool, the need the project addresses, the project’s experimental design and methodology, partners and collaborators, as well as accomplishments made, benefits derived, and findings disseminated. A brief discussion of plans to continue the research project or to implement the new technology or tool is also included. If you are interested in receiving a copy of the booklet, please contact Rudi Luyendijk at 515-294-2931 or rluyendi@ameslab.gov.

Technical Innovations in Management & Infrastructure

In collaboration with Iowa State University and the Minnesota Bureau of Criminal Apprehension Forensic (BCA) Science Lab in St. Paul, we are developing an expert system for evidence submission. A prototype for Controlled Substances submittal was uploaded on the Ames Lab server and reviewed by BCA evidence technicians and forensic scientists. Their feedback was used to make software modifications and to develop prototypes for all other BCA disciplines.

We have uploaded these prototypes on the Ames Lab server and BCA users are currently testing and evaluating them. As building blocks for these prototypes, the PIs used the methodology currently in place by the BCA for evidence submittal supplemented by information received from BCA

forensic scientists. Over the next month or so we hope to receive feedback from the BCA section forensic scientists to make the adjustments necessary to develop the pre-final version of the Evidence Submission Expert System.

The BCA is currently locating law enforcement agencies interested in testing and evaluating the pre-final Evidence Submission Expert System version. Once tested and evaluated, we will make the necessary adjustments to finalize the Evidence Submission Expert System. We are currently preparing the various manuals and documents to facilitate installation, operation, and customization of the software at the BCA.

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