Organization of Scientific Area Committees for Forensic Science

OSAC Newsletter

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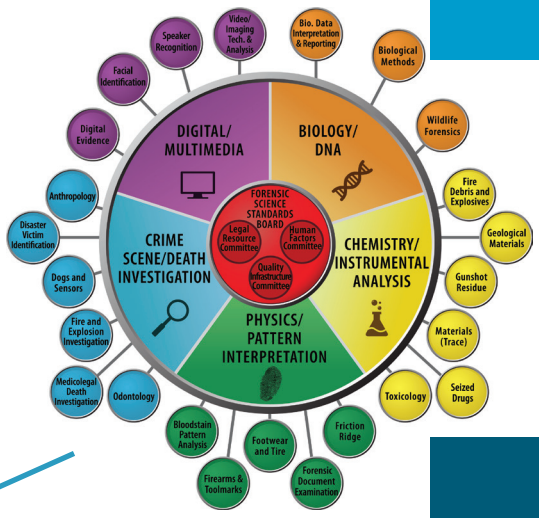
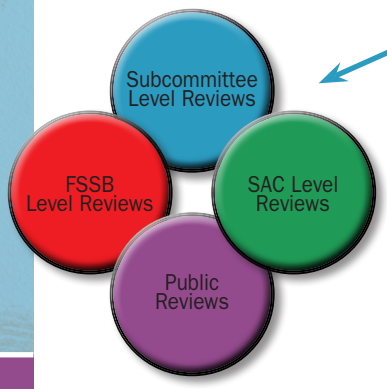
Feature Article:

OSAC Publishes the Standards/Guidelines Registry Approval Process

Forensic science service providers need access to a uniform set of standards that support scientifically sound and statistically valid test results, laboratory results, and courtroom testimony. These types of standards would help increase confidence in the criminal justice system, and the testimony put forth by practitioners.

One aim of the Organization of Scientific Area Committees for Forensic Science (OSAC) is to identify and promote existing, technically sound, consensus-based, fit-for-purpose documentary standards that are based on sound scientific principles. This will be achieved through the *OSAC Registry of Approved Standards* and the *OSAC Registry of Approved Guidelines*. A standard or guideline that is posted on the registry demonstrates that the methods it contains have been assessed to be valid by forensic practitioners, academic researchers, measurement scientists, and statisticians through a consensus development process that allows participation and comment from all relevant stakeholders.





The OSAC has developed and launched the *OSAC Registry Approval Process of Published Standards and Guidelines*, which includes checklist criteria against which existing standards and guidelines are to be analyzed before they are posted to the registries. This includes an analysis of technical merit, the openness of the development process (to ensure balanced interests are represented), consensus, harmonization,

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FSSB Meeting in May 2015: *Top row left to right:* Austin Hicklin, MS; Andrew Baker, MD; Steven Johnson; Scott Oulton; Barry Logan, PhD; *Middle row left to right:* Mark Stolorow, MS, MBA; Douglas Ubelaker, PhD; Gregory Davis, MD; Richard Vorder Bruegge, PhD; *Bottom row left to right:* Sarah Kerrigan, PhD; Mark Keissler, Jeremy Tripplett, MS; Laurel Farrell; George Herrin Jr., PhD; Karen Kafadar, PhD. *Not pictured:* Anil Jain, PhD.

Message from the Forensic Science Standards Board (FSSB)

Jeremy Triplett, Chair

The FSSB recognizes and appreciates all of the hard work occurring within the Scientific Area Committees (SACs) subcommittees and resource committees in contributing to our program's initial deliverables, and most recently the deliverables of our early operations. To date we have developed 24 priority action reports that are available on Kavi public workspace, developed and issued a repeatable and transparent process through which the OSAC will perform work, and submitted the first 5 selected standards to route through the OSAC Standards/Guidelines Registry Approval Process (for more information, see page 4). Shortly you will also be able to facilitate further development of other critical documents through existing standards development organizations (SDOs) or through the canvass method.

We would like to also offer a highlight of the FSSB's ongoing activities. First, the FSSB has established multiple task groups, each with specific focus and action items. These task groups include:

- Bylaws and Operations
- Ethics
- Finance
- Long Range Planning
- Membership and Awards
- Nominations
- Outreach and Communication
- Statistics

The FSSB is also developing the process for adding a new forensic discipline to the OSAC, developing and analyzing OSAC program metrics, and actively working to fill current OSAC vacancies.

We look forward to a productive year of the OSAC. Please contact forensics@nist.gov with any questions for the FSSB.

About OSAC

The Organization of Scientific Area Committees (OSAC) is part of an initiative by the National Institute of Standards and Technology (NIST) and the U.S. Department of Justice (DOJ) to strengthen forensic science in the United States. The organization is a collaborative body of more than 500 forensic science practitioners and other experts who represent local, state, and federal agencies; academia; and industry. OSAC is organized into 33 operating units based on discipline and purpose. The OSAC fosters the development and promotion of technically sound, consensus-based documentary standards and guidelines that can be used to strengthen the practice of forensic science.

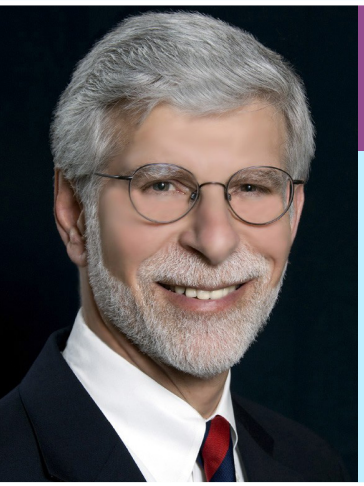
The purpose of OSAC is to strengthen the nation's use of forensic science by:

- providing technical leadership necessary to facilitate the development and promulgation of consensus-based documentary standards and guidelines for forensic science
- promoting standards and guidelines that are fit-for-purpose and based on sound scientific principles
- promoting the use of OSAC standards and guidelines by accreditation and certification bodies
- establishing and maintaining working relationships with other similar organizations.

The aims of the OSAC are to:

- populate the *OSAC Registry of Approved Standards* and the *OSAC Registry of Approved Guidelines*
- compile and update the forensic science catalog of external standards and related documents
- maintain Priority Action Plan documents on OSAC strategic objectives and associated goals and intended actions
- promote and improve the communication, dissemination and use of forensic science standards, accreditation, and personnel competencies
- encourage forensic science service providers in the United States to implement guidelines and standards (e.g., ISO/IEC 17025, etc.) for quality and competency
- provide insight on each forensic science discipline's research and measurement standard needs
- enlist stakeholder involvement from a broad community to provide public comment on OSAC outputs.

Message from the OSAC Affairs Director



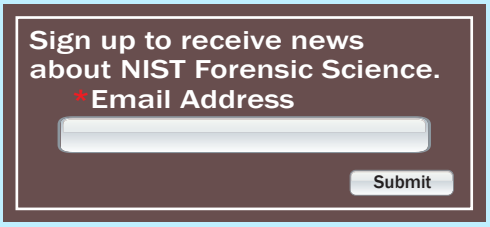
Mark Stolorow, Director for OSAC Affairs

Welcome to the inaugural issue of the OSAC for Forensic Science monthly newsletter.

The benefits of OSAC as a single organization that encompasses multiple forensic science disciplines helps to develop and promote enforceable standards via a unified effort in the forensics field, and to broaden the impact these standards could have.

OSAC is launching a monthly newsletter to share program activities and accomplishments with internal and external stakeholders and contributors. The OSAC Affairs Program Office at NIST welcomes any feedback and contributions related to the OSAC and OSAC newsletter. Please send feedback and inquiries to forensics@nist.gov.

Please visit the OSAC homepage at www.nist.gov/forensics/osac and insert your e-mail address in the brown box on the left side of the screen.



OSAC Meeting in January 2015

Upcoming Public Comment Periods for Standards/Guidelines Under Consideration for the OSAC Registry

The Materials (Trace) Subcommittee, the Seized Drugs Subcommittee, and the Fire Debris and Explosives Subcommittees have submitted the following standards for consideration to the OSAC registry. If all OSAC approvals are met, public comment period will open shortly on the Kavi Public Workspace https://workspace.forensicosac.org/kws/public/documents?wg_abbrev=sac_chem, under "documents". The intent of the public comment period is to collect public opinion on inclusion of the standard to the OSAC registry.

ASTM: E2330-12 Standard Test Method for Determination of Concentrations of Elements in Glass Samples Using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Forensic Comparisons

One objective of a forensic glass examination is to compare glass samples to determine if they can be discriminated using their physical, optical or chemical properties (for example, color, refractive index (RI), density, elemental composition). If the samples are distinguishable in any of these observed and measured properties, it may be concluded that they did not originate from the same source of broken glass. If the samples are indistinguishable in all of these observed and measured properties, the possibility that they originated from the same source of glass cannot be eliminated. The use of an elemental analysis method such as inductively coupled plasma mass spectrometry yields high discrimination among sources of glass. This test method covers a procedure for quantitative determination of the concentrations of magnesium (Mg), aluminum (Al), iron (Fe), titanium (Ti), manganese (Mn), rubidium (Rb), strontium (Sr), zirconium (Zr), barium (Ba), lanthanum (La), cerium (Ce), neodymium (Nd), samarium (Sm), and lead (Pb) in glass samples.

ASTM: E2926-13 Standard Test Method for Forensic Comparison of Glass Using Micro X-ray Fluorescence (μ-XRF) Spectrometry

This test method is for the determination of major, minor, and trace elements present in glass fragments. The elemental composition of a glass fragment can be measured through the use of μ-XRF analysis for comparisons of glass. This test method covers the application of μ-XRF

On the Horizon

The Quality Infrastructure Committee (QIC) and NIST OSAC Program Affairs Office are working on the procedures describing how to facilitate moving a standard or guideline through a standards development organization (SDO) and how to facilitate the development of a standard through the canvass method. Future newsletter issues will feature information on standards and guidelines that are under consideration for these processes.

Standards Development Organization (SDO) Corner

As an outreach effort to increase participation with Standards Development Organizations (SDOs), NIST met with multiple organizations to discuss OSAC activities and the potential for OSAC standards submissions. These organizations include the American Dental Association, College of American Pathologists (CAP), the National Fire Protection Agency (NFPA), and ASTM International.

Recently, the American Academy of Forensic Sciences (AAFS) received $1.5M, over a four-year period, from the Laura and John Arnold Foundation to become an accredited SDO, as well, in order to create standards in support of the National Institute of Standards and Technology (NIST) OSAC. AAFS is working to apply to the American National Standards Institute (ANSI) to become an ANSI Standards Developer (ASD) and to generate American National Standards. Once recognized, AAFS will be among the list of relevant SDOs that OSAC may turn to in order to develop needed forensic science standards. For more information, visit: http://news.aafs.org/aafs-news/aafs-receives-funding-to-become-an-accredited-standards-development-organization-sdo/.

Additionally, The International Organization for Standardization (ISO) has recently converted its Project Committee to a formal Technical Committee (TC). ISO TC 272 Forensic Sciences will develop standards and guidance in the field of forensic science. This includes the development of standards that pertain to laboratory and field based forensic science techniques and methodology in broad general areas such as the detection and collection of physical evidence, the subsequent analysis and interpretation of the evidence, and the reporting of results and findings. For more information, visit: http://www.iso.org/iso/home/standards_development/list_of_iso_technical_committees/iso_technical_committee.htm?commid=4395817.

Please contact forensics@nist.gov if you know of or are an SDO which would be relevant to the OSAC.

using mono- and poly- capillary optics, and an energy dispersive X-ray detector (EDS).

ASTM: E2329-14 Standard Practice for Identification of Seized Drugs

This practice describes minimum criteria for the qualitative analysis (identification) of seized drugs. Listed are a number of analytical techniques for the identification of seized drugs. These techniques are grouped on the basis of their discriminating power. Analytical schemes based on these groupings are described.

ASTM: E2548-11e1 Standard Guide for Sampling Seized Drugs for Qualitative and Quantitative Analysis

This guide covers minimum considerations for sampling of seized drugs for qualitative and quantitative analysis.

ASTM: E2881-13e1 Standard Test Method for Extraction and Derivatization of Vegetable Oils and Fats from Fire Debris and Liquid Samples with Analysis by Gas Chromatography-Mass Spectrometry

This test method covers the extraction, derivatization, and identification of fatty acids indicative of vegetable oils and fats in fire debris and liquid samples. This procedure will also extract animal oils and fats, as these are similar in chemical composition to vegetable oils and fats. Herein, the phrase “oils and fats” will be used to refer to both animal and vegetable derived oils and fats. This test method is suitable for successfully extracting oil and fat residues having 8 to 24 carbon atoms.

To be notified of upcoming public comment periods, please visit the OSAC homepage at www.nist.gov/forensics/osac and insert your e-mail address in the brown box on the left side of the screen.

All standards descriptions are from www.astm.org, accessed July 30, 2015.

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and impact on the forensic community. Multiple levels of the OSAC evaluate the standards and guidelines against these criteria. If criteria are amply met, OSAC proceeds to issue a notice of intent that includes an open comment period to solicit further feedback from all stakeholders. OSAC reviews and adjudicates all public comments received and then incorporates that feedback into their final vote on whether or not the standard/guideline should be included in the registry.

It is worth noting that there will still be existing standards and guidelines that are not recommended and/or approved for the registries, but that does not necessarily mean that the OSAC is invalidating their use. The absence of a standard or guideline simply means that it has either not been recommended yet, or it might have only met a portion of the criteria.

The *OSAC Registry Approval Process of Published Standards and Guidelines* is now available for use by the OSAC. OSAC subcommittees have already begun to submit standards and/or guidelines to this review process. OSAC registries will be published once the first set of standards have been approved, and will continue to be populated throughout OSAC operations.

Recent and Upcoming Meetings

- Human Factors Committee at the National Institute of Standards and Technology (NIST) on July 26-27, 2015
- Legal Resource Committee at NIST on July 27-28, 2015
- Quality Infrastructure Committee at NIST on July 27-28, 2015
- Chemistry Scientific Area Committee (SAC) at NIST on July 27-28, 2015
- Crime Scene SAC at NIST on July 27-28, 2015
- Forensic Science Standards Board (FSSB) at NIST on July 29-30, 2015
- Physics SAC in Sacramento, CA during International Association for Identification (IAI) meeting on August 2-3, 2015
- Digital SAC in Sacramento, CA during IAI meeting on August 3rd & 5th, 2015
- Biology SAC meets in Grapevine, TX during International Symposium on Human Identification (ISHI) on October 13th & 15th, 2015
- Forensic Science Standards Board (FSSB) at U.S. Drug Enforcement Administration (DEA) Special Testing Laboratory on December 3-4, 2015
- Full OSAC Meeting in the DC metro area on January 25-29, 2016
    - January 25th – FSSB Meeting (8:30 AM – 5:00PM)
    - January 26th – 5 SACs and 3 Resource Committee Meetings (8:30 AM – 5:00PM)
    - January 27th – 24 Subcommittees and 3 Resource Committee Meetings (8:30 AM – 5:00PM)
    - January 28th – 24 Subcommittees and 3 Resource Committee Meetings (8:30 AM – 5:00PM)
    - January 29th – ½ day 24 Subcommittee Meetings (8:30 AM – approximately 1:00PM)
- OSAC Public Reporting at American Academy of Forensic Sciences (AAFS) in Las Vegas, NV on February 22-23, 2016. (5 SAC Chairs & 24 Subcommittee Chairs or their designees will present)

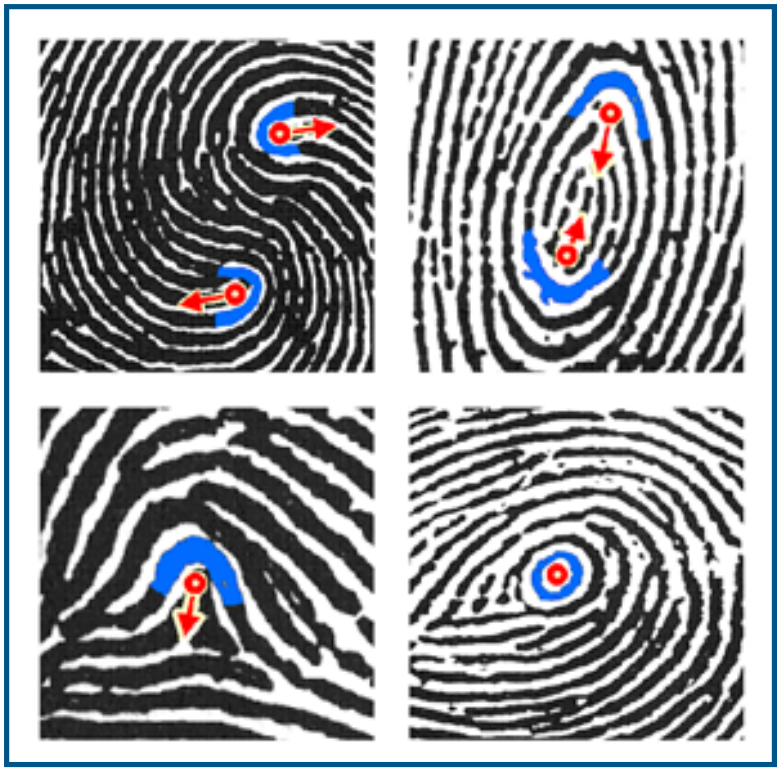
Resources for OSAC and the Forensic Community

The Catalog of External Standards and Guidelines is a collection of standards, guidelines and other documents applicable to forensic science. None of the documents in the catalog has been developed by OSAC (the Organization of Scientific Area Committees). The catalog was compiled by NIST staff in early 2015 for OSAC members to assess existing standards, guidelines and best practices that are already publicly available.

OSAC committees may propose standards and guidelines from the catalog to submit for inclusion in the *OSAC Registry of Approved Standards* or *OSAC Registry of Approved Guidelines*. They may also develop new standards and guidelines for the OSAC registries to replace current documents in the catalog. They may also develop entirely new and original standards and guidelines.

The catalog is available to download as a sortable Excel spreadsheet file[1] (link opens an Excel file). It contains the titles and source information for more than 700 standards, guidelines and related documents. The catalog also lists web addresses for documents that are available online.

If you know of any existing standards or guidelines that are not included in this catalog, or have any other questions, please contact us at forensics@nist.gov.



Latent Fingerprint Feature Examples, Credit: ANSI-NIST-ITL

1 http://www.nist.gov/forensics/osac/upload/Forensic-Standards-and-Guidelines-Catalog-2015.xlsx

OSAC Vacancies

There is one vacancy on each of the following OSAC units:

- Quality Infrastructure Committee
- Human Factors Committee

To apply, visit https://nist.gov/forensics/osac-application.cfm. For more information, go to www.nist.gov/forensics. Sign up for news alerts and OSAC updates by submitting your email address in the sign-up box on the left side of the web page.

OSAC Accomplishments:

Date	Event
Aug 2010	White House National Science and Technology Council Subcommittee on Forensic Science (SoFS) proposes that a Scientific Working Group Program Management Office be established and run by the NIST in order to coordinate the activities of individual SWGs
Feb 2013	DOJ and NIST announce plans to form the National Commission on Forensic Science (NCFS), as a federal advisory commitee to DOJ, and to establish scientific guidance groups that will be administered by NIST
June 2013	NIST meets with the chairs of current Scientific Working Groups (SWGs) to discuss potential structures for an organization to house the guidance groups
Sept to Nov 2013	NIST gathers information from a public Notice of Inquiry regarding guidance groups; 82 responses are received
Dec 2013	NIST planning team develops a proposed infrastructure for the guidance groups
Jan 2014	Discussions are held between NIST planning team and forensic professional organizations including AAFS, AFTE, ASCLD, IAI, NAME, and SOFT

Date	Event
Feb 2014	At the first NCFS meeting, NIST announces a proposed structure for the scientific guidance groups called the Organization of Scientific Area Committees (OSAC)
Feb 2014	NIST planning team met with representatives of forensic science accreditation bodies
Feb 2014	At the American Academy of Forensic Sciences (AAFS) meeting in Seattle (and via webcast), NIST provides a detailed description of the planned OSAC structure
Mar 2014 to Nov 2014	Outreach presentations sharing planned OSAC structure are given at numerous scientific & professional meetings
April & May 2014	Initial 30-day application period results in over 1300 applicants to positions within OSAC
June 2014	NIST planning team meets with representatives of various Standards Development Organizations (SDOs)
June 2014	Forensic Science Standards Board (FSSB) membership appointed
July 2014	Legal Resource Committee (LRC), Quality Infrastructure Committee (QIC), and Human Factors Committee (HFC) membership appointed

Date	Event
Aug 2014	First FSSB in-person meeting occurs
Sept 2014	Membership appointed for five Scientific Area Committees (SACs)
Sept 2014	Applications received for digital evidence subcommittee
Oct 2014	Membership appointed for 23 OSAC subcommittees
Dec 2014	Membership appointed for digital evidence subcommittee
Dec 2014	OSAC Catalog of External Standards and Guidelines issued, consisting of more than 700 existing forensics-related standards and guidelines for consideration by the OSAC subcommittees
Jan 2015	First in-person subcommittee meetings held
Feb 2015	First public SAC meetings held, and subcommittee chairs provided details on the Priority Action Reports.
July 2015	Quality Infrastructure Committee and the Forensic Science Standards Board issue a detailed review and approval process to route existing standards and guidelines for placement on the registries. Subcommittees begin routing packets for review and public comment.

QIC Chair Karen Reczek explains registry approval process at resource committee meetings.