

National Commission on Forensic Science

Washington, DC

May 1, 2015

OSAC Update and Priority Action Reports

Jeremy Triplett, FSSB Chair

George Herrin, Biology/DNA SAC Chair

Scott Oulton, Chemistry/Instrumental Analysis SAC Chair

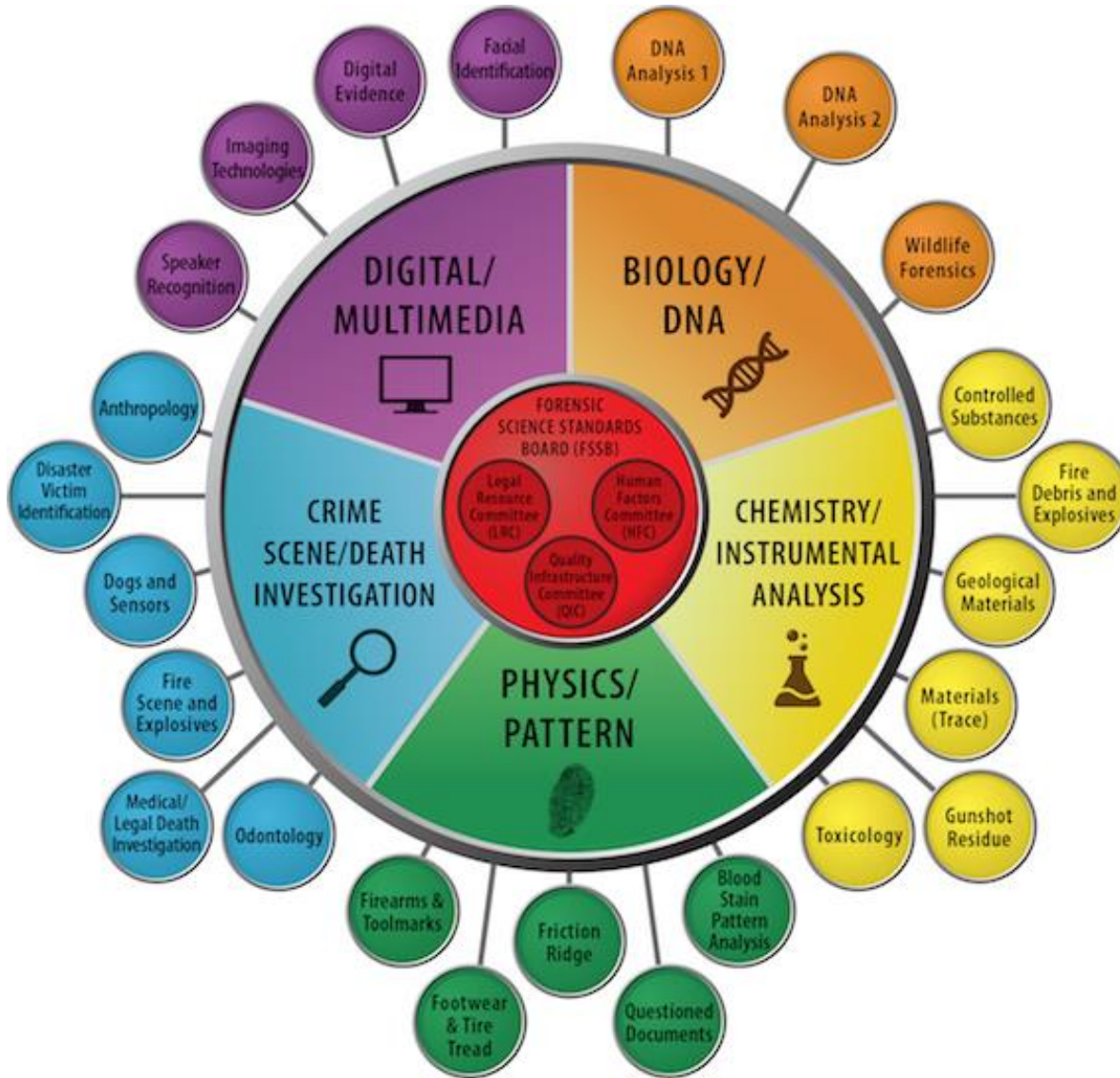
Greg Davis, Crime Scene/Death Investigation SAC Chair

Richard Vorder Bruegge, Digital/Multimedia SAC Chair

Austin Hicklin, Physics/Pattern SAC Chair



OSAC STRUCTURE



FSSB Roles and Responsibilities

- Oversight for all SAC, subcommittee, and resource committee operations
- Review and provide final approval of Standards for inclusion in OSAC Registry
- Ensure communication flow among OSAC units
- Establish procedures as necessary for functioning of organization



FSSB Composition

- 6 members of professional forensic associations
- 5 SAC chairs
- 4 members of research community
- 1 NIST representative

Education: 7 PhDs, 2 MDs

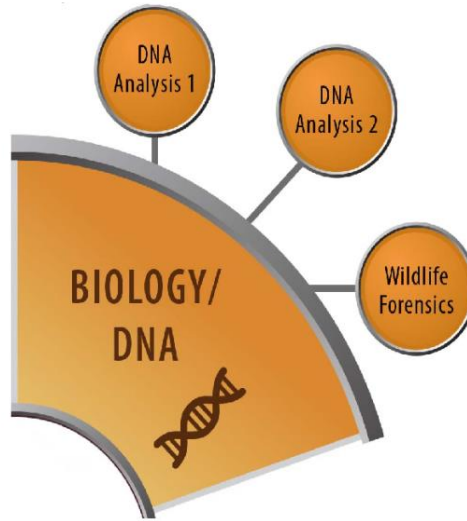
Experience: 200+ years of combined forensic experience

Research: 700+ peer reviewed articles, 20+ books, 10 patents

Current FSSB Priorities

- Guidance and coordination between OSAC units
- Organization processes and procedures
- Cross-disciplinary issues
- Research needs mechanism
- Outreach
- Calendaring for remainder of 2015





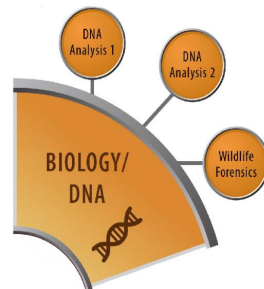
DNA / Biology

George Herrin, Ph.D.
DNA / Biology SAC Chair
Georgia Bureau of Investigation



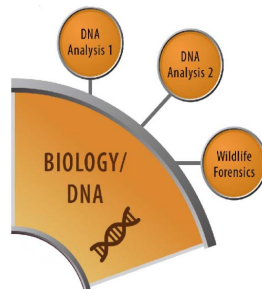
DNA/Biology SAC

- Biological Methods - standards and guidelines that support molecular and biochemical methods used to analyze evidence and reference items.
- Interpretation and Reporting - standards and guidelines related to scientifically valid methods of interpretation, statistical analysis and reporting of biological results.
- Wildlife - standards and guidelines related to taxonomic identification, individualization, and geographic origin of non-human biological evidence based on morphological and genetic analyses.



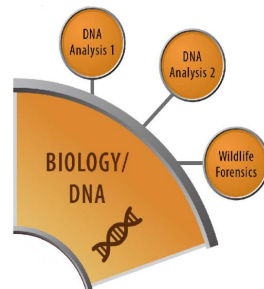
DNA/Biology SAC: Tentative Timeline

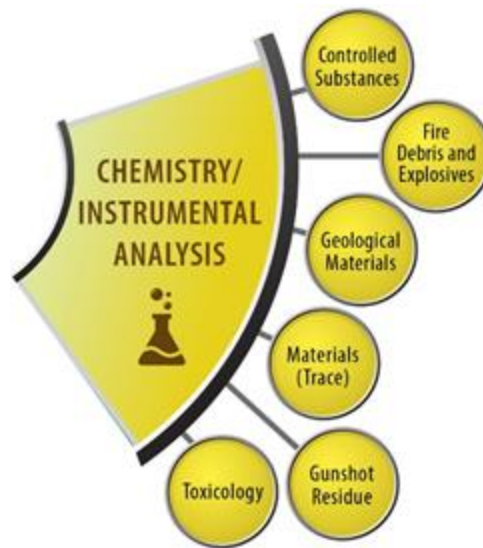
- Fall 2015: Subcommittees complete drafting and/or review of documents
- Late 2015: Subcommittee approves documents for SAC review
- 2016: SAC completes document reviews, approves guidelines for registry, moves potential standards to FSSB for review



DNA/Biology SAC: Focus Areas

- Working collaboratively with SWGDAM to incorporate existing documents into the OSAC environment.
- Standards and guidelines for validation of new techniques to avoid replicative efforts.
- Standards and guidelines related to analyst competency, education, etc.
- Standards and guidelines related to software and mixture interpretation





Chemistry/Instrumental Analysis

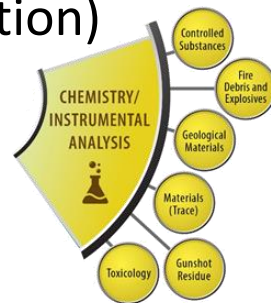
Scott Oulton

Chemistry/Instrumental Analysis SAC Chair
Drug Enforcement Administration



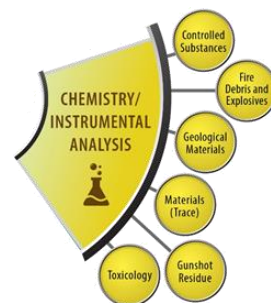
Chemistry / Instrumental Analysis SAC

- Subcommittees
 - Materials/Trace
 - Seized Drugs
 - Toxicology
 - Gun Shot Residue
 - Fire Debris and Explosives
 - Geological Materials
- SAC is made up of a very diverse group – all with a basic foundation of chemistry
 - We have started to recognize our common interests
 - Began discussing the need to work on foundation and interdisciplinary documents (e.g., education, training, validation)



Chemistry / Instrumental Analysis SAC

- Fortunate that majority of subcommittees had strong foundational documents that were already developed from Scientific Working Groups
 - Many have already been through SDO process
- SAC is focusing on what already exists and is relevant for placement on the registry
 - Prepared to recommend 8 existing standards (Fire, Trace, Drugs)
 - Other existing standards are being updated through the SDO process



Chemistry / Instrumental Analysis SAC

- OSAC is providing consistent funding, formalized process, cross communication and balance of interests
 - (transparency, private, federal, state, researchers, statisticians, LRC, HFC, QIC, etc.)
- With this structure, we have begun to recognize how much we are the same and not to “re-invent the wheel” for those topics that cross all disciplines
- Enforcement of standards is becoming a real possibility



Chemistry / Instrumental Analysis SAC

- Spring 2015: Several subcommittees submit existing SDO documents for SAC review/approval and forward to the FSSB for consideration of placement on the registry
- Fall 2015: Complete review of existing SDO documents
- Late 2015: Propose revisions to existing SDO documents that need updating and begin submitting relevant documents to an SDO or Canvass process
- 2016: Begin authoring new relevant standards





Crime Scene / Death Investigation



Greg Davis, M.D.

Crime Scene / Death Investigation SAC Chair
University of Alabama-Birmingham



Crime Scene / Death Investigation SAC

- Subcommittees
 - Anthropology
 - Disaster Victim Identification
 - Dogs and Sensors
 - Fire and Explosion Investigation
 - Medicolegal Death Investigation
 - Odontology



Crime Scene / Death Investigation SAC

- Different subcommittees at different points
- Subcommittees realize that some aspects of each practice more controversial than others
 - Concentrate on topics ripe for consensus first
 - Wrestle with more contentious areas later
- Process will take time, but careful, deliberate, steady progress needed.





Digital / Multimedia

Richard Vorder Bruegge, Ph.D.

Digital/Multimedia SAC Chair
Federal Bureau of Investigation

Digital / Multimedia SAC

- Subcommittees
 - Digital Evidence
 - Facial Identification
 - Speaker Recognition
 - Video/Imaging Technology & Analysis
- Solid foundation of documents for all derived from Scientific Working Groups and others
 - QIC identified over 80 relevant documents
 - Some have been through an SDO (e.g., ASTM, ISO...)



Digital / Multimedia SAC: Foundational Concepts

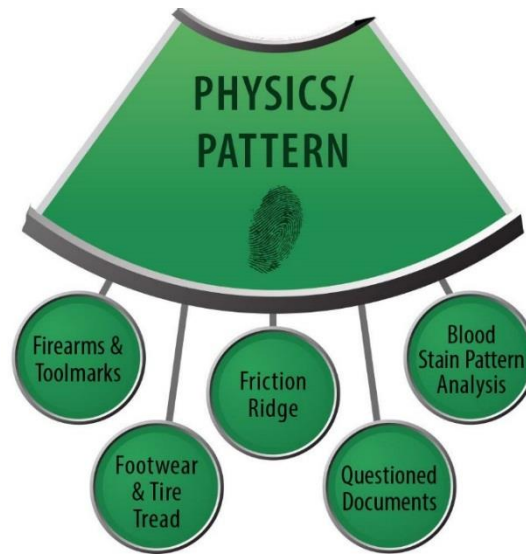
- Define the Discipline
- Terminology
- Professional Qualifications
- Gap Analysis/Research Agenda
- Sample Identification and Collection
- Validation
 - Methods, tools, people
- Documentation
- Conclusion Scales
- Interpretation of Results
- Human Factors
- Automated Systems



Digital / Multimedia SAC

- Some Key DMSAC & OSAC Challenges:
 - Facial Identification & Speaker Recognition vs. Eyewitness & "Ear" witness
 - Scientific Paradigm for Digital/Multimedia Forensics
 - Error Rates through Testing Examiners
 - Experts and "Experience"
- Not a 1-, 2-, or 5-year project...nor is it without cost.





Physics / Pattern

Austin Hicklin

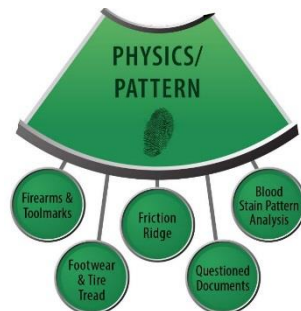
Physics/Pattern SAC Chair

Noblis



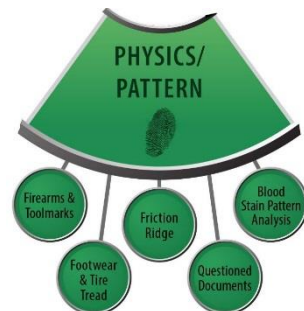
Physics / Pattern SAC: Priorities

- To foster the development of rigorous standards and guidelines within and across the pattern disciplines
- To assist in the adoption of these standards and guidelines
- To encourage enforcement of these standards and guidelines through accreditation, certification, and training
- To encourage evaluation to test and validate procedures
- To encourage research to improve the disciplines
- To enhance the rigor of these disciplines through transparent, accurate, and reliable processes



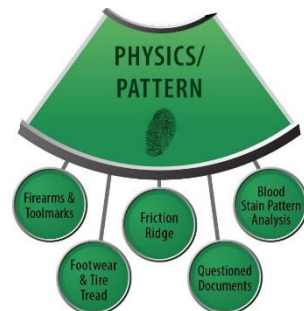
Physics / Pattern SAC: Priorities

- Develop standards and guidelines that are as rigorous as practical given current capabilities
- Recommend research to continually improve the disciplines
- Coordination across disciplines in defining standards and guidelines
- Encouraging studies of accuracy, repeatability, and reproducibility in each discipline
- Outreach to others in the community not in OSAC
- Build on the work of the SWGs



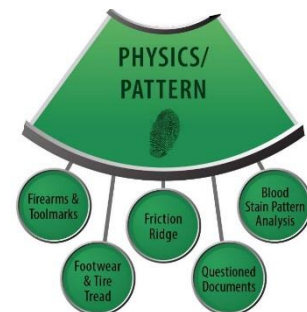
Physics / Pattern SAC: Subcommittees (1 of 2)

- Bloodstain Pattern Analysis
 - *detecting, describing, and analyzing the size, shape, distribution, number, location, and pattern of bloodstains, as well as the nature of their target surfaces and the relationship among various bloodstains*
- Firearms and Toolmarks
 - *examination of firearm and toolmark evidence. This includes the comparison of microscopic toolmarks on bullets, cartridge cases, and other ammunition components and may also include firearm function testing, serial number restoration, muzzle-to-object distance determination, tools, and toolmarks*
- Footwear and Tire
 - *detection, documentation, recovery, examination and comparison of footwear and tire evidence*



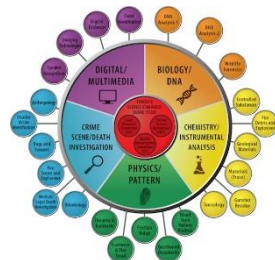
Physics / Pattern SAC: Subcommittees (2 of 2)

- Forensic Document Examination
 - *the source of handwriting; the source of machine-produced documents, typewriting, or other impressions and marks; the materials and devices involved in the production of documents; the genuineness and alterations; and the preservation and/or restoration of legibility*
- Friction Ridge
 - *the forensic examination of friction ridge detail from the hands and feet*



Final Thoughts

- SACS/subcommittees discussing many of the needs identified by NCFS
- Big undertaking – will take some time
- KAVI site: <http://workspace.forensicosac.org>
- Thanks to: Mark Stolorow & John Paul Jones



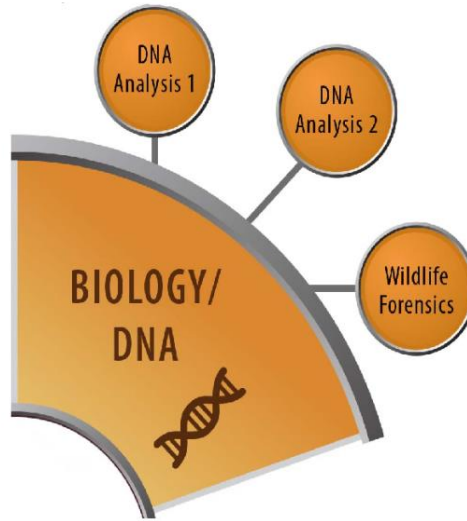
Questions?



www.nist.gov/forensics/osac.cfm

BACKGROUND





DNA / Biology

George Herrin, Ph.D.
DNA / Biology SAC Chair
Georgia Bureau of Investigation



DNA/Biology:

Biological Methods Subcommittee

Purpose: Focus on standards and guidelines that support molecular and biochemical methods used to analyze evidence and reference items.

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|---|--------------------------------------|---------|
| Forensic Biology Terminology | Develop standardized list of terms with definitions | Multiple [7] from FBI, SWGDAM, ENSFI | TBD |
| Validation and Method Development | Create standards/guidelines for validation of SOPs | Multiple [6] from FBI, ENSFI, SWGDAM | TBD |
| Education, Training, Competency, Certification | Establish standards/guidelines for education, training, competency, and certification | Multiple [4] from SWGDAM, FBI | TBD |

DNA/Biology:

Biological Methods Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|--------------------------------------|---|-----------------------------------|---------|
| Sample identification and collection | Serology, body fluid ID, sample ID, and collection (SAKs, sero methods, evidence screening, contamination prevention) | Multiple [4] from SWGDAM, ISO/IEC | TBD |

DNA/Biology:

Biological Interpretation and Reporting Subcommittee

Purpose: Focus on standards and guidelines related to scientifically valid methods of interpretation, statistical analysis and reporting of biological results.

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------------------|--|---|---------|
| Terminology | Review/Standardization of terminology | Multiple [20] from FBI, SWGDAM, ENSFI, FSR, ISFG | TBD |
| Statistical Interpretation | Describe existing methods and delineate appropriate areas of application | Multiple [4] from FBI, SWGDAM, AABB, SWGDAM | TBD |
| Probabilistic Genotyping | Define requirements for validation of probabilistic genotyping | Multiple [20] from SWGDAM, ENSFI, FBI, FSR, ISO/IEC, NATA, SES, ILAC, ISFG, Standards Australia | TBD |

DNA/Biology:

Biological Methods Subcommittee

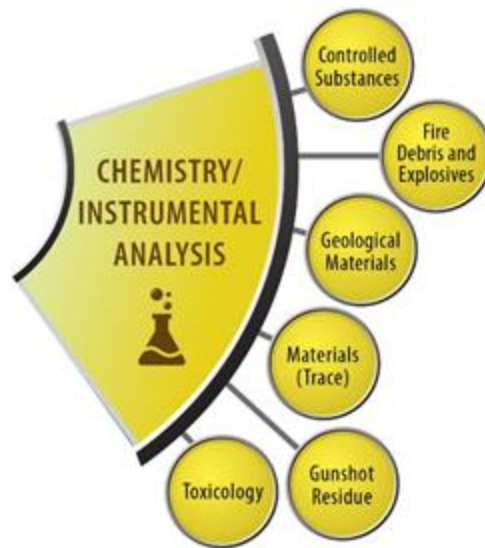
| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------------------|--|---|---------|
| Software Validation Standards | Standards/Guidelines for validation and implementation of software programs that impact analytical process, sizing algorithms, and/or interpretation | Multiple [6] from FBI, SWGDAM, ASTM, ANSI | TBD |
| Mixture Interpretation Verification | Standards to allow for verification of lab's mixture interpretation protocol | Multiple [9] from SWGDAM, ENSFI, FSR, FBI | TBD |

DNA/Biology:

Wildlife Forensics Subcommittee

Purpose: Focus on standards and guidelines related to taxonomic identification, individualization, and geographic origin of non-human biological evidence based on morphological and genetic analyses.

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|---|--|---------|
| Wildlife Forensics Genetics and Morphology | Review existing standards/guidelines for WF genetics and morphology | SWGWILD v. 2.0 | TBD |
| Terminology | Review terminology and definitions used in WF | Multiple [4] from FBI, SWGWILD, SWGDAM, ASTM | TBD |
| Report Writing | Create reports writing guidelines for WF | Multiple [5] from SWGWILD, FBI, IFSG | TBD |
| Validation | Standards/guidelines for internal and developmental validations | Multiple [5] from SWGWILD, SWGDAM, FBI | TBD |



Chemistry/Instrumental Analysis

Scott Oulton

Chemistry/Instrumental Analysis SAC Chair
Drug Enforcement Administration



Chemistry/Instrumental Analysis:

Fire Debris and Explosives Subcommittee

Purpose: Focus on standards and guidelines related to examination and testing of items and debris collected from a fire or bombing scene, and testing of materials to determine if an accelerant or explosive substance is or was present.

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|--|--|---------|
| Evaluate ASTM Standards | Evaluate and submit revisions, if necessary, to existing relevant ASTM standards | E1386-10, E1388-12, E1412-12, E1413-13, E1618-14 | SDO |
| Develop Guide for Fire Debris and Explosives Analysis | Evaluate existing documents and develop general guidelines for fire debris / explosives analysis | Multiple [3] from SWGFEX | SDO |
| Terminology | Develop glossaries for fire debris and explosives terminology | Glossary of Terms – SWGFEX | SDO |

Chemistry/Instrumental Analysis: Fire Debris and Explosives Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|-----------------------|---|---|--------------|
| Report Wording | Develop best practices document for reporting | Multiple [3] from ASTM, SWGFEX | TBD |
| QA/QC Guidelines | Develop QA/QC guidelines for handling/analysis of fire debris and explosives (including validation, proficiency testing, and competency testing considerations) | Quality Assurance Guide for Forensic Analysis of Ignitable Liquids (SWGFEX) | TBD |
| Research and Training | Review research needs, existing training resources | -N/A- | OSAC Website |

Chemistry/Instrumental Analysis:

Geological Materials Subcommittee

Purpose: Develop consensus standards and guidelines for the collection and analysis of soils and geological materials.

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------------|---|---|--------------|
| Research Initiatives | Identify research topics/needs | -N/A- | OSAC Website |
| Sample Collection | Evaluate amount of sample required for different types of materials collected – improve existing instruction provided | Standard Guide for Collection of Soils and Other Geological Evidence for Forensic Applications (SWGGE0) | SDO |

Chemistry/Instrumental Analysis: Geological Materials Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|-----------------------------------|---|----------------------|---------|
| Terminology | Create glossary of terms, combine traditional soil, geology, forensic terms into single glossary to better enable communication | -None existing- | SDO |
| Validation of Collection Document | Distribute collection document for feedback from cross-disciplinary examiners (crime scene) | -N/A- | SDO |
| Resources and References | Compile list of resources and reference material for discipline | -N/A- | |

Chemistry/Instrumental Analysis:

Gunshot Residue Subcommittee

Purpose: Focus on standards and guidelines related to analyses of evidence that results from the deposition of or physical transfer of small or minute quantities of gunshot residue.

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|---|---|---------|
| Report writing, qualifying statements, disclaimers, and interpretation | Develop a standard written report to deal with particular challenges faced by GSR examiners with regard to interpretations of results and documenting conclusions | E620 (ASTM), Guide for GSR Analysis by SEM/EDX (SWGGSR) | SDO |
| Proficiency, Analysis, Competency, and Training | Develop a standard to focus on proficiency/competency objectives and requirements; also, a training outline of essentials for SEM/EDX | Multiple [2] from ENFSI, ASTM | TBD |

Chemistry/Instrumental Analysis: Gunshot Residue Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|--|---|---------|
| Testimony and Ethics | Address challenges for GSR examiners during testimony. Legal challenges and ethics will be outlined. | Guide for Primer GSR Analysis by SEM/EDX (SWGGSR) | TBD |
| Methodology, Research, and Literature Review | Create standard or guideline of best practice policies pertaining to current methodology | Guide for Primer GSR Analysis by SEM/EDX (SWGGSR) | TBD |
| Validation, Performance Checks, Instrument Performance requirements, General troubleshooting | Address validation of instruments, performance checks, maintenance consideration, and general troubleshooting. | -None existing- | TBD |

Chemistry/Instrumental Analysis: Materials (Trace) Subcommittee

Purpose: Focus on standards and guidelines related to examination and interpretation of physical evidence that may result from the transfer of small or minute quantities of materials (e.g., hair, fibers, paint, tape, glass).

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------------|--|---|---------|
| Trace Evidence Interpretation | Recommendations on how to interpret and describe the significance of results of comparative examinations | Expert Reporting Guideline (SWGMAT); various lab SOPs | TBD |
| Trace Evidence Outreach | Identify needs of community, opportunities to promote communication, and educational material | -N/A- | -N/A- |

Chemistry/Instrumental Analysis: Materials (Trace) Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|--------------------------|---|--|---------|
| Fiber Documents | Update 4 ASTM standards and revise 3 SWGMAT documents | E2224, E2225, E2228, E2227 (ASTM), 3 SWGMAT docs | SDO |
| Tape and Paint Documents | Transition SWGMAT documents to ASTM standards | Multiple [8] from SWGMAT | SDO |
| Hair Documents | Revise 2 SWGMAT documents and transition to ASTM standards | Human Hair Examination Guide and Training Program (SWGMAT) | SDO |
| Glass Documents | Update ASTM standard and transition SWGMAT docs to ASTM standards | E1967 (ASTM), multiple SWGMAT documents [7] | SDO |

Chemistry/Instrumental Analysis:

Seized Drugs Subcommittee

Purpose: The Seized Drugs Subcommittee will focus on standards and guidelines related to the examination of evidence to identify drugs and related substances.

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------------|--|-------------------------------------|---------|
| Recognize existing standards | Place existing recognized standards on the OSAC Registry of Standards | E2329-10 (ASTM) | SDO |
| Education/Training/Competency | Recommend, establish, revise, and promote expectations for education, training (new hires and CE), and competency | E2326-14 (ASTM) | SDO |
| Method Development | Review, revise, develop documents pertaining to: sampling, method development & validation, acceptance criteria, and UoM | Multiple [4] from ASTM, ENSFI/UNODC | SDO |

Chemistry/Instrumental Analysis: Seized Drugs Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|--|---|---------|
| Reporting & Terminology | Propose, revise, establish report wording & terminology | E620-11 (ASTM), SD-5 (SWGDRUG) | SDO |
| Analogues & Structural Class Determinations | Identify best practices in determining how to meet legal criteria of structural similarity related to controlled substance analogues | SWGDRUG v 7.0 Part IIID, and researching others | SDO |
| OSAC Catalog Review | Ongoing review of OSAC catalog – identify and assess relevant documents | E2882-12, E2327-15, E1968-11, E1969-11, E2125-11 (all ASTM) | SDO |

Chemistry/Instrumental Analysis: Toxicology Subcommittee

Purpose: Focus on standards and guidelines related to the analysis of biological samples for alcohol, drugs, or poisons, and the interpretation of these results.

| Priority Topic | Description | Relevant Standard(s) | Process |
|---------------------|--|---|---------|
| Document Evaluation | Evaluate existing standards/guidelines, identify gaps | Multiple [4] from SWGTOX | Canvass |
| Method Validation | Incorporate changes to SWGTOX Method Validation standard | Multiple [7] from SWGTOX, UNODC, CLSI, Eurachem, HAS, ASFSTP, FDA | Canvass |
| Quality Control | Complete SWGTOX document to describe minimum standards of practice | Multiple [7] from ABFT, ASTM, SOFT/AAFS, GTFCh | Canvass |

Chemistry/Instrumental Analysis: Toxicology Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|-----------------------------------|---|---|---------|
| Breath Alcohol Calibration | Develop document for minimum standards for validation and calibration of breath alcohol instruments | Multiple [4] from Canadian Soc of For. Science, Natl. Safety Council, Centre for Appl. Science and Tech. (UK), OIML | CANVASS |
| Terminology | Establish glossary or terms to be used within developed documents | Multiple [3] from ASTM | CANVASS |
| Reporting and Testimony Practices | Develop guidelines and standard language for tox reports and testimony | -None existing- | CANVASS |
| Measurement Traceability | Develop minimum requirements for traceability, particularly for measurement uncertainty | Multiple [5] from ASCLD/LAB, ISO/IEC | CANVASS |



Crime Scene / Death Investigation

Greg Davis, M.D.

Crime Scene / Death Investigation SAC Chair
University of Alabama-Birmingham



Crime Scene/Death Investigation: Anthropology Subcommittee

Purpose: Focus on standards and guidelines related to application of anthropological methods and theory – particularly those relating to the recovery and analysis of human remains – to resolve legal matters.

| Priority Topic | Description | Relevant Standard(s) | Process |
|-----------------------------------|---|---------------------------------------|----------|
| Recognize existing standards | Place existing recognized standards on the OSAC Registry of Standards | Best Practices (SWGANTH) | Registry |
| Training and Competency | Create “Training and Competency” standard/guideline | Multiple [2] from SWGANTH and ISO/IEC | SDO |
| Method Development and Validation | Create standard/guideline on method development and validation | Multiple [3] from ASTM and ISO/IEC | SDO |
| Revise existing standards | Review, revise, and reformat existing guidelines | Multiple [17] from SWGANTH | SDO |

Crime Scene/Death Investigation: Disaster Victim Identification Subcommittee

Purpose: *Focus on standards and guidelines related to fatality management of a mass fatality incident that involves the scientific identification of human remains.*

| Priority Topic | Description | Relevant Standard(s) | Process |
|--------------------------------|--|---|---------|
| Mass Fatality Scene Processing | Develop best practices for scene processing during mass fatality incident scenes | Mass Fatality Incident Search and Recovery (SWGDIV) | CANVASS |
| Molecular Biology | Develop best practices for DNA processing for ID of disaster victims | Molecular Biology Considerations for Human ID in Mass Fatality Incidents (SWGDIV) | CANVASS |

Crime Scene/Death Investigation: Disaster Victim Identification Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|--------------------|--|----------------------|---------|
| Friction Ridge | Develop best practices of postmortem submission strategy for comprehensive searches of essential AFIS databases during mass fatality incidents | SWG DVI | CANVASS |
| Forensic Pathology | Develop best practices for role of forensic pathologist in DVI context | SWG DVI | CANVASS |
| Data Management | Develop best practices for antemortem and postmortem data management during mass fatality incident | SWG DVI | CANVASS |
| Ethics | Develop guidelines for ethical practices in DVI and mass fatality incidents | SWG DVI | CANVASS |

Crime Scene/Death Investigation: Disaster Victim Identification Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|------------------------------------|---|----------------------|---------|
| DVI Management | Develop guidelines for overarching DVI management concepts and best practices | SWG DVI | CANVASS |
| Reconciliation/Quality Assurance | Develop best practices for multi-disciplinary integration and reconciliation of ID information to achieve DVI with high standards of QA | SWG DVI | CANVASS |
| Family Assistance/Victim ID Center | Develop best practices for family assistance and victim ID center operations | SWG DVI | CANVASS |
| Forensic Anthropology | Develop best practices for application of forensic anthropology in DVI | SWG DVI | CANVASS |

Crime Scene/Death Investigation: Disaster Victim Identification Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|---------------------|--|----------------------|---------|
| Forensic Odontology | Develop best practices for application of forensic odontology to DVI | SWG DVI | CANVASS |
| Terminology | Develop consensus definitions to terms specific to DVI | SWG DVI | CANVASS |

Crime Scene/Death Investigation:

Dogs and Sensors Subcommittee

Purpose: Focus on standards and guidelines related to improvement of the consistency and performance of deployed dog/handler teams and optimization of their combination with electronic detection devices designed to improve interdiction efforts as well as courtroom acceptance.

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|---|---|---------|
| Review of current documents | Review existing SWGDOG documents for future registry publication or editing | Multiple [5] from SWGDOG | TBD |
| Training/Competency | Review existing training guidelines and develop plan for revision | SWGDOG and external discipline guidelines | TBD |
| Cross-disciplinary standards/guidelines | Review and cross-reference Standards/Guideline Catalog. Identify relevant documents | Multiple | TBD |

Crime Scene/Death Investigation: Dogs and Sensors Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|---------------------------------|--|----------------------|---------|
| Outreach and Education | Identify strategies for communicating process to practitioners and encourage participation | -N/A- | |
| Integration of Dogs and Sensors | Develop resource materials that outline effective/collaborative use of dogs and sensors | -None existing- | TBD |

Crime Scene/Death Investigation:

Fire and Explosion Investigation Subcommittee

Purpose: Focus on standards and guidelines related to the investigation, analyses, and interpretation of crime scenes where arson or use of explosives is suspected.

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------------------------|--|------------------------------|----------|
| Recognize existing standards | Place existing recognized standards on the OSAC Registry of Standards | Multiple [8] from NFPA, ASTM | Registry |
| Competency | Evaluate existing training/competency requirements and develop revisions | NFPA 1033 | SDO |
| Documentation and Report Writing | Review current guidelines and develop revisions to report preparation requirements and content | NFPA 921, 1033 | SDO |

Crime Scene/Death Investigation: Fire and Explosion Investigation Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|--------------------------------|--|---|--------------|
| Analysis of relevant standards | Identify gaps in existing standards on process, methodology, competency, and research. Recommend revision. | NFPA 921, 1033, ASTM standards, Standards Australia | SDO |
| Research | Review state-of-the-art science and literature. Identify research needs. | -N/A- | OSAC website |

Crime Scene/Death Investigation:

Medicolegal Death Investigation Subcommittee

Purpose: Focus on standards and guidelines related to sudden, unnatural, unexplained, or suspicious deaths, including homicides, suicides, unintentional fatal injuries, drug-related deaths, and other deaths that are sudden or unexpected; determination of the cause and manner of death.

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|---|----------------------------|---------|
| Peer review, QA, and Human Factors/Cognitive Bias | Review issues of peer review and QA, product recommendations for QA and validation | -None existing- | TBD |
| Autopsy Standards | Review existing standards for adoption or revision | NAME standards | TBD |
| Medicolegal Death Investigation | Perform literature review, develop needs assessment, investigate case mgmt issues, determine how to proceed | Multiple [3] from NIJ, CDC | TBD |

Crime Scene/Death Investigation: Odontology Subcommittee

Purpose: Focus on standards and guidelines related to application of dental science to the identification of unknown human remains and bite marks, using both physical and biological dental evidence.

| Priority Topic | Description | Relevant Standard(s) | Process |
|-----------------------|---|---------------------------------------|---------|
| Dental Identification | Review existing guidelines, standard, best practices; identify gaps; review education/certification | Body Identification Guidelines (ABFO) | SDO |
| Bitemarks | Review existing guidelines, standards, best practices; identify gaps | Bitemark Guidelines (ABFO) | SDO |
| Dental Age Estimation | Review existing guidelines, standards, best practices; identify gaps | Dental Aging Guidelines (ABFO) | SDO |

Crime Scene/Death Investigation: Odontology Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------|---|----------------------|---------|
| Oral / Peri-oral issues | Establish guidelines, standards, best practices; identify gaps in knowledge | -None existing- | TBD |



Digital / Multimedia

Richard Vorder Bruegge, Ph.D.
Digital/Multimedia SAC Chair
Federal Bureau of Investigation

Digital / Multimedia:

Digital Evidence Subcommittee

Purpose: Focus on standards and guidelines related to information of probative value that is stored or transmitted in binary form.

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------|---|---|---------|
| Computer Forensics | Define minimum standards for collection and examination process | Multiple [6] from SWGDE, FSR, SWGIT | TBD |
| Mobile Device Forensics | Provide minimum standards regarding digital forensic acquisition and analysis of data from mobile devices | Multiple [7] from SWGDE, NIST, NIJ, AIC (Australia) | TBD |
| Quality Assurance | Minimum standards regarding computer forensic QA programs | Multiple [8] from SWGDE, SWGIT, FSR, Inspectors General | TBD |

Digital / Multimedia:

Digital Evidence Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------------------|---|---|---------|
| Training and Certification | Develop minimum standards for foundational and continuing education, training, and certification requirements | Guidelines and Recommendations for Training (SWGDE & SWGIT) | TBD |
| Education | Development of model curricula and minimum standards for undergraduate/graduate programs | Standards Guide for Education and Training in Computer Forensics (ASTM) | TBD |
| Audio Forensics | Develop minimum standards for audio forensics | Multiple [2] from SWGDR | TBD |

Digital / Multimedia:

Facial Identification Subcommittee

Purpose: Focus on standards and guidelines related to image-based comparisons of human facial features.

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------|---|-------------------------|---------|
| Terminology | Update existing glossary and review for consistency | FISWG Glossary (ASTM) | SDO |
| Training | Standards/guidelines for training | Multiple [2] from FISWG | SDO |
| One-to-One | Improve standards/guidelines related to process FI examiners complete when performing comparison of facial images | Multiple [8] from FISWG | SDO |
| Systems & Capture | Develop standards/guidelines related to FR systems and capture of images | Multiple [4] from FISWG | SDO |

Digital / Multimedia:

Facial Identification Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------------|---|----------------------|--------------|
| Public Communication | Keep OSAC and FISWG websites coordinated as processes are developed | -N/A- | OSAC website |

Digital / Multimedia:

Speaker Recognition Subcommittee

Purpose: Focus on standards and guidelines related to application of methods and technologies to determine whether a vocal recording discovered as evidence matches the voice of a suspect.

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|--|--|--------------|
| Speech collection guidelines for SR applications | Develop guidelines for collection of speech data in a variety of cases | Speech Collection Guidelines for Speaker Recognition Applications (DMMSAC) | TBD |
| Prioritized research areas | Provide research gaps | -N/A- | OSAC website |

Digital / Multimedia:

Speaker Recognition Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|---|----------------------------------|----------|
| General Principles for Forensic Speaker Recognition | Develop best practices for automatic speaker recognition | -None existing- | TBD |
| Structured listening by phonetic approach | Develop best practices in consultation with pending existing SWG-Speaker document | In-process SWG-Speaker document | TBD |
| ANSI/NIST ITL Type 11 voice records | Develop guidelines and recommendations needed for Type 11 voice records to enable standardization | Type 11 Voice Record (ANSI/NIST) | Registry |
| Scientific Evidence Manual | Update existing speaker recognition evidence manual | -None existing- | TBD |
| Annotated list of SR cases | Develop list of important SR legal cases | -None existing- | TBD |

Digital / Multimedia:

Video/Imaging Technology and Analysis Subcommittee

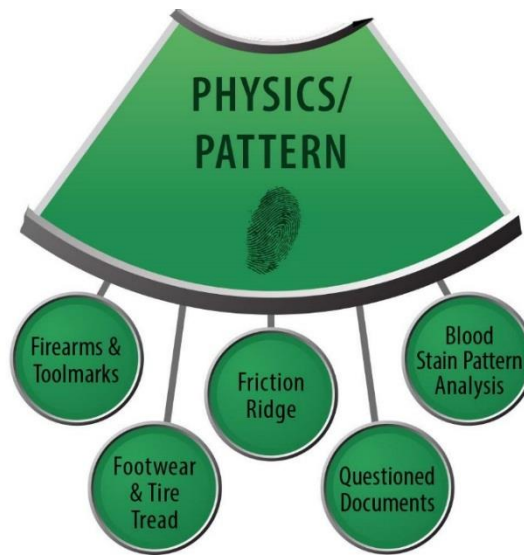
Purpose: *Focus on standards and guidelines related to application of technologies and systems to capture, store, process, analyze, transmit, and archive images.*

| Priority Topic | Description | Relevant Standard(s) | Process |
|------------------------------|---|--|----------|
| Subcommittee Coordination | Establish coordination and liaisons for relevant cross-cutting sub-disciplines | -N/A- | |
| Recognize existing standards | Place existing recognized and ready standards on the OSAC Registry of Standards | Multiple [2] from ASTM | Registry |
| Training | Review and revise existing Training guidelines | Multiple [18] from SWGIT, LEVA, ISO, UK Govt., ASTM, SWGDE | TBD |

Digital / Multimedia:

Video/Imaging Technology and Analysis Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|-----------------------------------|---|--|---------|
| Review and update other standards | Review and revise existing guidelines and recommendations for update | Multiple [18] from SWGIT, LEVA, ISO, UK Govt., ASTM, SWGDE | TBD |
| Photogrammetry | Develop new standard for photogrammetry using existing SWGIT standard | Best Practices for Forensic Image Analysis (SWGIT) | TBD |



Physics / Pattern

Austin Hicklin

Physics/Pattern SAC Chair

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Physics / Pattern:

Bloodstain Pattern Analysis Subcommittee

Purpose: Focus on standards and guidelines related to examination and analysis of the trajectory, shape, and size of stains left by bloodshed or transferred at a crime scene. Bloodstain patterns can yield valuable information for reconstruction of the incident.

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------------------|--|--|---------|
| Terminology | Review existing terminology and revise as necessary | Recommended Terminology (SWGStain) | CANVASS |
| BPA Reports and Validation | Review and update recommended guidelines for BPA reports and validation procedures | Multiple [2] from SWGStain | CANVASS |
| BPA Training and Education | Review and update recommended guidelines for BPA training and education, create guidelines for BPA certification program | Guidelines for Minimum training and education for BP Analysts (SWGStain) | CANVASS |

Physics / Pattern:

Bloodstain Pattern Analysis Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|--------------------------------|---|----------------------------|--------------|
| BPA Quality Assurance and SOPs | Review and update of recommended guidelines for BPA QA and SOPs | Multiple [3] from SWGSTain | CANVASS |
| BPA Research | Identification of BPA research needs and gaps | -N/A- | OSAC website |
| Recognize existing standards | Place existing recognized standards on the OSAC Registry of Standards | Multiple [2] from SWGSTain | Registry |

Physics / Pattern:

Firearms and Toolmarks Subcommittee

Purpose: Focus on standards and guidelines related to determination of whether an evidence bullet was fired from a suspect weapon. It may also include comparison of fired cartridge cases, firearm function tests, serial number restorations, and distance determinations.

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|---|---|---------|
| Technology Development, Validation, and Implementation | Provide standards for evaluating new measurement and comparison methods; specify hardware QA protocols and validation requirements for software and statistical conclusions | Multiple [4] from ISO/IEC, SWGDAM, literature | TBD |
| Examination Standards | Develop standard methods for examination | Multiple [6] from SWGGUN | TBD |

Physics / Pattern:

Firearms and Toolmarks Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|---|--|---------|
| Uncertainty of Measurement | Develop procedures to express UoM of physical quantities | Multiple [6] from ASCLD/LAB, ISO/IEC, SWGGUN | TBD |
| Training program | Develop standardized methods for a training program; establish measures of competency testing | Multiple [3] from SWGGUN, NFSTC, AFTE | TBD |
| Criteria for Identification, Documentation, Reporting | Develop minimum standards for criteria used to draw conclusions, supporting documentation, and reporting of conclusions | Multiple [7] from AFTE, SWGGUN | TBD |
| Terminology / Report Writing | Review and update existing glossaries; develop minimum report writing requirements and standardized language | Multiple [2] from AFTE, SWGGUN | TBD |

Physics / Pattern:

Footwear and Tire Subcommittee

Purpose: *Focus on standards and guidelines related to forensic examination of footwear and tire impression evidence.*

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------|---|---------------------------------|---------|
| Terminology | Review and update existing terminology; coordinate across Pattern SAC for consistency | Standard #15 (SWGTHREAD) | CANVASS |
| Method Development | Review and revise existing methods for field and lab procedures | Multiple [12] from SWGTREAD | CANVASS |
| Training and Competency | Review and revise, as necessary existing training /competency guidelines | Multiple [3] from SWGTREAD, IAI | CANVASS |

Physics / Pattern:

Footwear and Tire Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------|--|----------------------|--------------|
| Research and Technology | Develop listing of research and technology needs | -N/A- | OSAC website |

Physics / Pattern:

Forensic Document Examination Subcommittee

Purpose: Focus on standards and guidelines related to examination, comparison, and analyses of documents to establish genuineness, expose forgery, or reveal alterations. A questioned document contains a signature, handwriting, typewriting, mechanical printing, or other mark whose source or authenticity is in dispute or doubtful. Letters, checks, drivers licenses, contracts, wills, voter registrations, passports, petitions, threatening letters, suicide notes, historical documents, and lottery tickets are common types of questions documents.

| Priority Topic | Description | Relevant Standard(s) | Process |
|--|---|--------------------------|----------|
| Recognize existing standards | Place existing recognized standards on the OSAC Registry of Standards | Multiple [10] from ASTM | Registry |
| Existing high priority non-SDO standards | Review and revise existing guidelines and recommendations for update | Multiple [5] from SWGDOC | CANVASS |
| Existing medium priority non-SDO standards | Review and revise existing guidelines and recommendations for update | Multiple [7] from SWGDOC | CANVASS |

Physics / Pattern:

Forensic Document Examination Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|---|--|---|---------|
| Existing Draft-stage non-SDO standards | Review, update, and finalize existing standards currently in draft stage | Multiple [9] from SWGDOC | CANVASS |
| Non-existent, or idea phase non-SDO standards | Create standards and guidelines that have not yet been drafted, or are still in idea-phase | Multiple [6] from ongoing SWGDOC/OSAC discussions | CANVASS |

Physics / Pattern:

Friction Ridge Subcommittee

Purpose: Focus on standards and guidelines related to forensic examination of fingerprints, palm prints, and footprints made through impressions.

| Priority Topic | Description | Relevant Standard(s) | Process |
|-------------------------------|--|-------------------------------------|---------|
| Method Development/Validation | Develop a method development validation workflow; evaluate existing standards and update | Multiple [2] from NIJ, NIST, Noblis | TBD |
| Examinations and Conclusions | Review and update, as necessary, standards/guidelines for thresholds and conclusions, reporting requirements, and validation | Multiple [6] from SWGFAST, NIJ/NIST | CANVASS |
| Documentation | Evaluate standards/guidelines from minimum documentation criteria during examination process | Multiple [2] from SWGFAST | CANVASS |

Physics / Pattern:

Friction Ridge Subcommittee

| Priority Topic | Description | Relevant Standard(s) | Process |
|----------------|--|---|--------------|
| Articulation | Review and revise existing guidelines on articulating decision making process | Guideline for Articulation of Decision-Making Process (SWGFAST) | CANVASS |
| Research | Identify research needs and gaps | Multiple [5] from SWGFAST, NIJ/NIST, Interpol, NAS | OSAC website |
| Training | Develop standardized training program | Multiple [4] from SWGFAST, IAI, NIJ/NIST | CANVASS |
| Terminology | Review and revise glossary of terms; coordinate with Physics/Pattern SAC for consistency | Multiple [6] from SWGFAST, FSR, ANSI/NIST, NIJ, ISO/IEC | CANVASS |