B115 Application of Microscopy in Forensic Science Training, Applied Research, and Service at the Biotechnology Center, Shadow Lane Campus, University of Nevada Las Vegas

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After attending this presentation, attendees will have increased knowledge of the principles of microscopy and equipment used in processing of human samples and processing aids associated with human identification. The use of microscopic techniques to stimulate creative thinking in research, service, and training will be presented. Information and pictorial aids will be presented to demonstrate the impact these microscopy techniques have on Forensic DNA Profiling for human identification.

This presentation will impact the forensic community and/or humanity by establishing specialized short-term niche training, laboratory service, and applied research in Forensic DNA Profiling. Many workshops and services are designed to satisfy specific individual needs of those in the forensic community. From this presentation, attendees will have an increased understanding of microscopy and its use in this area. This training is valuable in helping those in the forensic community improve their skills, advance in the profession, or attain a professional position in the forensic community.

In a process that started early in this decade, a new Biotechnology Center has been established at the Shadow Lane Campus of the University of Nevada Las Vegas. Within this Center, a modern Forensic DNA Laboratory is in place that is providing training, laboratory services, applied research, and assisting entrepreneurs in DNA Profiling.

This presentation will cover the use of light microscopy, including observation under different degrees of optical magnification, brightfield (stained samples), phase contrast (unstained samples), polarized light (samples exhibiting birefringence), fluorescence (samples exhibiting auto-fluorescence) and differential interference contrast (a high resolution contrasting method), to augment knowledge, data, and observations as DNA is isolated, quantified, amplified and analyzed. Specific images of samples typical of sexual assault, blood, clothing, teeth, bone, and a variety of cells will be presented and discussed as alternative sources of DNA. DNA results from analysis of such samples and processing aids in extraction and purification will be presented in association with microscopic images. The images presented and methods discussed will include differentially-stained post-coital samples, confirming the presence of spermatozoa in a known male/female mixture, and differentially stained images following the digestion of epithelial cells to confirm presence of sperm heads only.

Microscopy, Forensic DNA Profiling, Differentially-Stained Images

 ** Presenting Author*