



## Physical Anthropology Section – 2008

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### **H24 Estimation of Bone Exposure Duration Through the Use of Spectrophotometric Analysis of Surface Bleaching and its Applications in Forensic Taphonomy**

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Upon completion of this presentation, attendees will be familiar with methods for quantifying bone surface color and how this data can be used to estimate the duration of time for which bone has been exposed to solar radiation.

This presentation will impact the forensic science community by. The ability to estimate bone exposure duration will provide forensic investigators with an additional tool for refining estimates of the postmortem interval.

This presentation will report on on-going research which aims to develop a new method of determining the exposure duration of bones by analyzing surface coloration changes resulting from solar radiation exposure. To date, analyzing sun-bleached bones has provided investigators with only a fraction of the information that these naturally modified objects have to offer. The term “bleached” has generally been taken to refer to bones that have been exposed to solar radiation, which imparts unto them some unknown amount of color alteration, given some unknown amount of time. Therefore, a “bleached” bone represents a point along a continuum of time, but until now no method has been developed to attempt to ascertain where that point lies on the continuum. Detailed color analysis of bone surfaces can be gained by employing spectrophotometric technologies, and this data can be used to establish rates of change per available solar radiation. Through this approach, color communication becomes objective and bone bleaching can be defined based on geographic parameters. This new method will provide forensic anthropologists another tool in determining the postmortem interval. Preliminary research results and the potential use of these methods will be discussed.

**Bone Bleaching, Postmortem Interval, Spectrophotometric**