



### D4 Back-Transfer of Footwear and Tire Tread Design on Victim Clothing

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Attendees will learn of the possible presence of the pattern design of tire and footwear tread patterns on inside surfaces of clothing as a result of violent contact actions. The existence of this evidence may not be readily observed by the investigator and this presentation stresses a need for additional examinations to be considered in some cases.

This presentation will describe the process by which the recovery of potentially valuable investigative information through the identification of footwear, tires, and other objects involved in criminal acts such as hit-and-run accidents and aggravated assaults. This associative evidence can assist in determining the relationship of the objects with individuals.

Contact pressure on the outside surfaces of wearing apparel made by an object having a three dimensional pattern that can result in the back transfer of the object's pattern design if there is suitable transferring material present on the underlying surface such as be bare skin or other layers of clothing. While the pattern transfer on the outside surface may be visible as a negative representation of the object's pattern design, the back transfer on the inside surface can be seen as a positive depiction of the design features. However, a visible contact mark may not be seen on the outside surface if there is no transferring medium on the object, but the pressure can still be sufficient to result in an inside back transfer of design features. The presence of a transferring substance on underlying surfaces can result in a pattern transfer on multiple layers of clothing. Negative and positive tire tracks may not necessarily represent corresponding contact points because of differing areas having the transferring material. In the case of tire and footwear tracks, the back transfer can provide sufficient detail of class characteristics to aid in brand identification or association with a known footwear or tire.

While this type of evidence has been associated with footwear and tires, the same type of pattern transfer could be encountered in other types of assaults in which the image or outline of a weapon could be discerned. It has also been found that some transferring substances can require subsequent enhancing techniques.

The author will show a case involving a negative tire track on a trouser leg visible because of tire tread contamination and the corresponding positive tire track from material on the victim's skin as a result of being ran over with a vehicle. There will also be illustrations of experimental trials to demonstrate the likelihood of positive and negative track representations from a single contact action on multiple layers of clothing resulting from the presence of transferring substances.

#### **Tire Tracks, Footwear Tracks, Associative Evidence**