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## Advancing Arson Investigation: A Comprehensive Review of Crime Scene Techniques, Analytical Methods, and Evidence Management

Catching arson has numerous constituents and is all about effectively establishing the scene, the cause, and how it occurred. This all-encompassing look highlights the evolution of crime scene tactics, analytical instruments, and management practices involved in managing arson investigations. The approach increasingly presents different technologies that can be utilized for fire scene documentation, including digital forensics and fire pattern analysis, as well as the significance of forensic chemistry in identifying accelerants. It also discusses evidence collection, preservation, and chain of custody methods considered best practices for maintaining the integrity of findings for use in litigation. The paper highlights how fire science and law enforcement skills are exploited with new analytical tools to make arson investigation an interdisciplinary field in precision and efficiency. It demonstrates how, through this analysis, ongoing development in the field may be noted and further recommendations made for improvement of investigatory outcomes concerning arson cases.

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