

# National Institute of Justice

**Award Title:** Interpretation of Ignitable Liquid Residues in Fire Debris Analysis: Effect of Competitive Adsorption, Development of an Expert System and Assessment of the False Positive/Incorrect Assignment Rate

**Award Description:**

The goal of the proposed research will be threefold: (1) To assess the effect of competitive adsorption of specific components of by various charred substrates routinely found in fire debris when employing the ASTM E1412 (Separation of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration with Activated Charcoal) which can lead to an incorrect interpretation of the results from E1618 (Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography]Mass Spectrometry); (2) Development of an expert system to interpret chromatograms obtained from Gas Chromatography] Mass spectrometry analysis of ignitable liquid residues (3) Statistical evaluation of the false positive and false negative rates by fire debris analysts and the expert system following E1618 at low levels of ignitable liquids in fire debris samples.  
ca/ncf

**Awardee Name:** Marshall University Research Corporation

**Award Number:** 2010-DN-BX-K272

**Solicitation Title:** NIJ FY 10 Fundamental Research to Improve Understanding of the Accuracy, Reliability, and Measurement Validity of Forensic Science Disciplines

**Fiscal Year:** 2010

**Amount:** \$540,752.00

**Earmark:** No

**Recovery Act:** No

**State/Territory:** WV

**County:** Cabell

**Congressional District:** 03

**Award Status:** Open