Civil No. B296998

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

SECOND APPELLATE DISTRICT, DIVISION ONE

JOANN PARKS,
Petitioner
V.

JANEL ESPINOZA, WARDEN,
CENTRAL CALIFORNIA WOMEN'S FACILITY
Respondent.

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF AND PROPOSED AMICUS CURIAE BRIEF OF THE INNOCENCE NETWORK IN SUPPORT OF PETITIONER

APPEAL FROM THE LOS ANGELES COUNTY SUPERIOR COURT
HONORABLE WILLIAM C. RYAN, PRESIDING JUDGE
CASE NO.: VA009503

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Amicus curiae the Innocence Network (the Network) is an association of independent organizations dedicated to providing pro bono legal and/or investigative services to prisoners for whom evidence discovered post-conviction can provide conclusive proof of innocence. The 67 current members of the Network represent hundreds of prisoners with innocence claims in 49 states, the District of Columbia, and Puerto Rico, as well as Australia, Argentina, Brazil, Canada, Ireland, Israel, Italy, the Netherlands, the United Kingdom, and Taiwan.[1] The Innocence

[1] The member organizations for amicus brief purposes include the Actual Innocence Clinic at the University of Texas School of Law, After Innocence, Alaska Innocence Project, Arizona Justice Project, Boston College Innocence Program, California Innocence Project, Center on Wrongful Convictions, Committee for Public Counsel Services Innocence Program, Connecticut Innocence Project, Duke Law Center for Criminal Justice and Professional Responsibility, Exoneration Project, George C. Cochran Innocence Project at the University of Mississippi School of Law, Georgia Innocence Project, Great North Innocence Project, Hawai'i Innocence Project, Idaho Innocence Project, Illinois Innocence Project, Indiana University McKinney Wrongful Conviction Clinic, Innocence Project, Innocence Project Argentina, Innocence Project at the University of Virginia School of Law, Innocence Project Brasil, Innocence Project London, Innocence Project New Orleans, Innocence Project of Florida, Innocence Project of Texas, Italy Innocence Project, Justicia Reinvindicada Puerto Rico Innocence Project, Korey Wise Innocence Project, Loyola Law School Project for the Innocent, Manchester Innocence Project, Michigan Innocence Clinic, Mid-Atlantic Innocence Project, Midwest Innocence Project, Montana Innocence Project, New England Innocence Project, New York Law School Post-Conviction Innocence Clinic, North Carolina Center on Actual Innocence, Northern California Innocence

Network and its members are also dedicated to improving the accuracy and reliability of the criminal justice system in future cases. Drawing on the lessons from cases in which the system convicted innocent persons, the Network advocates study and reform designed to enhance the truth-seeking functions of the criminal justice system to ensure that future wrongful convictions are prevented.

Based on its experience exonerating innocent people and examining the causes of wrongful convictions, the Network has become keenly aware of the role that unreliable or improper scientific and medical evidence has played in miscarriages of justice, especially where the evidence is comprised almost completely of expert scientific testimony. Some of the underlying "science" in these cases has been exposed as flawed, disputed, or outright false.

According to the National Registry of Exonerations, false or misleading science has been a contributing factor in 24% of the known wrongful convictions since 1989. (The National Registry of

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Project, Office of the Ohio Public Defender Wrongful Conviction Project, Ohio Innocence Project, Oklahoma Innocence Project, Oregon Innocence Project, Osgoode Hall Innocence Project, Rocky Mountain Innocence Center, Taiwan Innocence Project, Thurgood Marshall School of Law Innocence Project, University of Arizona Innocence Project, University of Baltimore Innocence Project Clinic, University of Baltimore Innocence Project Clinic, University of British Columbia Innocence Project at the Allard School of Law, University of Miami Law Innocence Clinic, Wake Forest University School of Law Innocence and Justice Clinic, Washington Innocence Project, West Virginia Innocence Project, Wisconsin Innocence Project, and Witness to Innocence.

Exonerations, % *Exonerations by Contributing Factor* (2021) http://www.law.umich.edu/special/exoneration/Pages/ExonerationsContribFactorsByCrime.aspx.) Examination of post-conviction-DNA-based exonerations, for example, has demonstrated that flawed or inaccurate forensic science testimony has contributed to approximately 63% of DNA-based wrongful convictions. (Garrett & Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions* (2009) 95 Va. L. Rev. 1, 14; see also Bieber, *Anatomy of a Wrongful Arson Conviction* (2014) <https://www.nafi.org/blog/anatomy-of-a-wrongful-arson-conviction/>.)

Proof of innocence is often untidy, untimely, and defies bright-line procedural strictures. (See Garrett, *Judging Innocence* (2008) 108 Colum. L.Rev. 55, 106 [noting that 86% of the individuals exonerated by DNA evidence had previously had their claims denied by appellate courts].) In science-dependent cases such as the present one, the Network is especially committed to ensuring, as an essential component of a fair and just determination of the facts, that the scientific underpinnings of scientific testimony are fully examined. The Network has a vital interest in ensuring that those wrongfully convicted can establish their innocence in post-conviction proceedings, especially where, as here, there are clear errors in the forensic evidence.

The case against Ms. Parks relied upon unreliable expert testimony regarding outdated theories of forensic fire science grounded in discredited forensic techniques. Amicus respectfully

requests that this Court permit it to submit this brief addressing these issues. (Cal. Rule of Court, rule 8.200(c).)

No person or entity other than Amicus and its counsel authored the attached brief or made any monetary contribution in its preparation.

Respectfully submitted,

Dated: June 3, 2021

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INTRODUCTION

In the three decades since the trial of Joann Parks, advances in fire science demonstrate conclusively that the evidence on which she was convicted of murder by arson is unreliable. Central to the State's case against Parks was the prosecution's expert witness testimony that the fire originated in two separate locations and that each was intentionally set because all accidental causes had been eliminated.

The State's fire investigators used burn pattern analysis to support its "two location" theory as to the origin of the fire. But the investigators failed to account for flashover, a recognized phenomenon where "surfaces exposed to thermal radiation reach ignition temperature more or less simultaneously and fire spreads rapidly throughout the space, resulting in full room involvement or total involvement of the compartment or enclosed space." (National Fire Protection Association ("NFPA") 921 § 3.3.93.) In common parlance, flashover is where a fire in a room turns into a room on fire. It is now known that once flashover occurs, burn pattern analysis is rendered unreliable. And while both State and defense fire experts now agree that flashover occurred, or likely occurred, at the fire in the Parks' home, the original investigators failed to recognize that flashover had occurred. Their omission renders the original investigator's burn pattern testimony as to the fire's location of origin flawed and false.

As to cause of the fire, the State's chief fire investigator relied on an analytical technique known as "negative corpus." (12

RT 3030-3031.) In essence, the State's witnesses testified at trial that because they believed they had eliminated all the potential accidental causes of the fire, it must have been started by "human hand." (12 RT 3053-3054.) Negative corpus has now been discredited as an acceptable forensic methodology for arson. As the leading fire science organization now explains, "[i]n circumstances where all hypotheses have been rejected, or if two or more hypotheses cannot be rejected, the only choice for the investigator is to conclude that the fire cause, or specific causal factors is undetermined. It is improper to base hypothesis on the absence of any supported evidence." (NFPA 921 § 19.6.5.1.)

The methodologies and "rules of thumb" used in this case to analyze burn patterns and make conclusions as to the fire's cause and origin —conclusions that directly led to the conviction of Ms. Parks—have now been discredited. Informed scientific experiments and studies have advanced fire science significantly, and better understanding of the phenomenon of "flashover," undermines the reliability of fire origin analysis based on burn patterns. Use of negative corpus to determine cause based on process of elimination has been rejected as unscientific—particularly where (as here) all the possible causes could not be eliminated because key potential accidental sources (a television and VCR) were destroyed in the fire and its aftermath.

There is now general consensus among the fire science community that the primary evidence and approach used to convict Parks – burn pattern analysis without accounting for flashover and negative corpus – is scientifically unsupportable

and flawed. Across the country, courts have repeatedly re-evaluated cases that relied on the same discredited fire science techniques and found the "evidence" legally insufficient as a matter of law to support convictions. Due process requires that Ms. Parks' petition for writ of habeas corpus be granted.

FACTS

The Network adopts by reference the statement of facts set forth in Ms. Parks' Petition for Writ of Habeas Corpus (the "Petition"), filed April 18, 2019. To provide context for the arguments raised in this brief, we provide a brief summary of the alleged crime, the trial, and the fire science testimony presented.

A. The Alleged Crime

In April 1989, Joann Parks, her husband, and their three children moved into a 528 square foot converted two-car garage in Bell, California. The home was not equipped with smoke detectors. (10 RT 2728.)

Shortly after midnight on April 9, 1989 (only one week after her family's move), Parks was awoken by the sounds of her child screaming. (8 RT 2174-2176, 2188-2189, 2197.) When Parks opened her bedroom door, she was confronted with a hot blast of flames and smoke. (8 RT 2188.) Unable to traverse the flames, Parks ran out the patio door located off her master bedroom and knocked on the door of her neighbors, Robert and Shirley Robinson, crying that her house was on fire and her children were trapped inside. (6 RT 1591; 7 RT 1627, 1632; 8 RT 2189.) Mr. Robinson attempted to enter the house through the master bedroom door, but he could not get past that room because of the

heat from the fire. (7 RT 1627.) At that point, Ms. Robinson and Ms. Parks went back to the Robinsons' house and called 9-1-1. (6 RT 1588-1589.)

Another neighbor, Bruce Cameron, observed the fire and went to Parks' home to offer help. (6 RT 1555-1556, 1558.) Cameron also tried to enter the house through the master bedroom door, but could not get further than a foot because the flames were too intense. (6 RT 1558-1559.)

Reserve police officer Timothy McGee, the first responder at the scene, would later report that the house was fully engulfed in flames and there was "smoke coming out of virtually every crack in the structure." (7 RT 1669.) McGee made two attempts to get in the house, each from different entry points, but could not gain entry due to the intense heat. (7 RT 1670-1672, 1674-1675.) Officer Jeff Bruce arrived on the scene and broke a window in the southeast bedroom, causing flames to replace the black smoke. (15 RT 3830-3832.) Officer Bruce warned McGee that the window was going to blow from the pressure building inside the home. McGee jumped over the wall; both rear windows then blew out. (7 RT 1676-1677.) When he tried again to make entry through those windows, he was met with smoke and open flame. (7 RT 1677.)

According to McGee, two firefighters arrived from the north side of the house, approached the southeast bedroom windows,

and began spraying water into the rear windows.[2] (7 RT 1677.) One of the firefighters, Dirk Wegner, carrying a firehose, entered the house through the living room door, walked through the kitchen and arrived at the southeast bedroom. (9 RT 2247.) According to Wegner, fire was erupting out of the west side windows, and the living room, kitchen, northeast bedroom, and southeast bedrooms were "fully involved." (9 RT 2247.)

After fighting the fire for approximately ten to fifteen minutes, firefighters found the bodies of two Parks children, Roann and Jessica, in the southeast bedroom. (7 RT 1679-1680; 9 RT 2248-2249.) Wegner later found the body of the third child, Ronnie, in a crouched position in a closet in the northeast bedroom. (9 RT 2255, 2257; 10 RT 2574-2575.) A medical examiner performed autopsies on the three children and concluded that all three died from thermal injury and inhalation of products of combustion, including carbon monoxide. (11 RT 2748, 2753-2754, 2761, 2765.)

B. The Trial

Joann Parks eventually was charged with murder. During her trial in 1992, both the prosecution and defense relied heavily on expert testimony. The prosecution's case against Parks was based on, *inter alia*: (a) the fire investigators' analysis that the areas of greatest damage indicated that there were two fires that were intentionally set; (b) the fire investigators' conclusion that

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[2] In contrast, Dirk Wegner, the first firefighter to respond to the scene, said nobody was spraying water from the outside into the bedroom. (9 RT 2235, 2320, 2323-2324.)

flashover had not occurred in the house, thus supporting their interpretation that burn patterns indicated multiple alleged areas of origin; and (c) the use of the flawed "negative corpus" approach to determine the cause of the fire by purportedly eliminating all potential accidental causes.

The prosecution's main expert at trial, Detective Ronald Ablott, testified with absolute certainty that there were two separate points of origin of the fire, one in the living room, and the other in the southeast bedroom. (11 RT 3016-3017, 3020.)[3]

As to the living room, Ablott and his colleague William Franklin, another fire investigator for the Los Angeles County Fire department, identified the locations of alleged origination based, in part, on a V-pattern on the north wall of the living room and significant charring near the baseboards on that wall. (9 RT 2400-2401; 10 RT 2546-2547; 12 RT 3034-3036; 18 RT 4750.) Ablott also believed the living room was the main area of origin because the ceiling in the room contained an "alligatoring" pattern, which was different than the burn damage the investigators observed in the southeast bedroom. (11 RT 2934-2935; 12 RT 3070; 13 RT 3427-3428.) In reaching their conclusion that the living room fire had been caused intentionally, Franklin and Ablott also relied on "negative corpus" methodology, believing that by purportedly eliminating all potential accidental causes, they could conclude with certainty

[3] Ablott was the lead fire investigator tasked with investigating the fire at Parks' residence. (11 RT 2911, 2913-2914.)

that the fire was started "by human hand." (10 RT 2592-2593, 2707; 12 RT 3053-3055; 14 RT 3578-3579.)

As to the southeast bedroom, Ablott concluded that a separate fire there "was caused by the application of an open flame by 'human hand' to the available combustibles on the floor stacked under or near the side of the bed near the foot of the bed . . . ." (11 RT 2994, 3018-3022; 12 RT 3030-3031.) His opinion was based on the severity of the burn damage and charring in the bedroom and by the door, and by the V-pattern coming from under the bed.[4] (11 RT 2872-2873, 2996; 12 RT 3027; 13 RT 3437.) Ablott concluded that the bedroom fire and the living room fire burned for the same amount of time and that the two fires converged. (11 RT 2994, 3018-3022; 12 RT 3025, 3041.)

The prosecution's case was also based on the erroneous assumption that flashover had *not* occurred. Specifically, Ablott concluded that flashover did not occur anywhere in the house because there were flammable items in the kitchen and on the floor that did not burn. (11 RT 3000.) If flashover had occurred, he presumed, these items should have been fully consumed by the fire. (11 RT 3001.) Ablott acknowledged, however, that had flashover occurred, he would need to reassess the area of origin; but in this case, he stated, even if he was incorrect about the non-occurrence of flashover, he would not call his conclusions into

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[4] Ablott pointed to sagging springs in the mattress, which he suggested indicated the bed was exposed to high degrees of heat; however, the fire did not burn under part of the bed, and some parts of the bed were not affected. (12 RT 3025-3026; 13 RT 3491-3492.)

question. (11 RT 3014-3017.) The prosecutor had a different opinion and acknowledged during a sidebar, "[i]f a flashover occurred, that changes everything with regard to the arson investigation presented in this case so far." (14 RT 3746.)

The defense offered testimony from private fire investigator Robert Lowe, who explained how the original fire investigators misread the fire patterns in the living room, southeast bedroom, and northeast bedroom. Electrical engineer Dr. Frederick G. Allen elaborated on Lowe's explanation that the original fire investigators improperly ignored the television in the living room as the cause of the fire. (13 RT 3358-59.) In fact, Ablott concluded that the television and VCR were not within the area of origin, compounding his flawed burn pattern analysis. (11 RT 2945-2946, 2950.)

With regard to the living room fire, Lowe identified a V-pattern at the base of the window, and opined that fresh air from the window (which blew out during the fire), caused the pattern. (14 RT 3703, 3711; 15 RT 3916-3917.) Additionally, Lowe concluded the fire in the southeast bedroom was caused by a flashover fire, and that the evidence in that room was *not* consistent with an intentionally set fire. (14 RT 3780-3781; 15 RT 3933.) Furthermore, the occurrence of flashover was consistent with Officer Bruce's report that the room was dark and filled with smoke, and that it was only *after* he broke the window that flames engulfed the room. (15 RT 3830-3831, 3833.) Lowe explained that when Bruce broke the window, he let fresh air into

a carbon monoxide filled room, creating a flashover fire. (14 RT 3799-3800.)

Finally, Lowe testified, if an independent fire was set in the southeast bedroom, the box spring mattress, which was built with very combustible material, would have been reduced to flat steel. (14 RT 3778, 3780.) As such, it was evident that the living room fire was burning long before the fire started in the southeast bedroom; otherwise, the box spring would not have survived. (14 RT 3778.)

The prosecution attacked Lowe's testimony as "a very deliberate, unequivocally-so ploy by the defense to establish a flashover occurred," because the occurrence of flashover "changes everything with regard to the arson investigation presented in this case so far." (14 RT 3746.) Continuing to portray flashover as a strategic ploy rather than a recognized scientific theory, the prosecutor repeatedly referred to Lowe as "Flashover Lowe." (19 RT 5126; 20 RT 5253.) The prosecutor also characterized Lowe's discussion of flashover as stemming from his preoccupation with the concept, not from his science-based review of the forensic evidence. He argued, "Lowe, for his flashover, flashover, flashover, flashover, that's all he talked about. He's even got flashover in the television set at one point. He loves that word. Flashover. Flashover." (19 RT 5131-5132; see also 19 RT 5135).

In closing, the prosecution also raised several unsupported allegations concerning Ms. Parks' guilt and motive that played on prejudices as to how a mother should act. Specifically, the prosecution argued that Ms. Parks' demeanor following the fire

was an indication of guilt (20 RT 5522-23); and that her motive for the alleged crime was simply that she did not want children anymore. (20 RT 5480.)

Parks was convicted on January 15, 1993. The trial court sentenced Parks to life in prison without possibility of parole. The conviction was affirmed by the Court of Appeal in 1994. Parks' life sentence was commuted in 2020 when her clemency petition was granted, and she was released from prison on January 12, 2021, after 29 years of incarceration.

C. Post-Conviction "Expert" Testimony on Cause of the Blaze.

In 2015, Parks filed a successive habeas petition in the Los Angeles Superior Court pursuant to the new Penal Code section 1473 "false evidence" standard. The petition led to an extended evidentiary hearing spanning 2017-18. During the hearing, the parties presented new expert testimony regarding the fire. Significantly, this time, unlike years earlier during trial, all of the State's experts agreed that flashover either occurred, or likely occurred, in the southeast bedroom and in the living room of the

Parks residence.[5] (11/16 EH p. 235; 01/31 EH pp. 375, 383, 388; 03/13 EH p. 545; 04/25, EH p. 817; 04/26 EH p. 977.) [6]

The State's post-conviction experts also acknowledged the challenges and potential pitfalls of assessing an area of origin by searching for pre-flashover patterns when the room is in a post-flashover state. (11/15 EH pp. 172-173; 04/25 EH pp. 757-758.) But the State's post-conviction experts nonetheless agreed with Ablott's original conclusion that there was a second area of origin in the southeast bedroom.[7] (3/13 EH pp. 589-592; 4/25 EH p. 817; 4/26 EH pp. 917-919.) The Los Angeles Superior Court concluded in its October 28, 2018 decision that habeas relief was not warranted, finding that while Respondent's three experts all concluded that flashover occurred, they also testified it did not

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[5] The kitchen was fully involved but may not have achieved flashover. (01/31, EH p. 371; 04/25, EH p. 817.); prosecution expert Hoback testified that flashover occurred in the living room, the northeast bedroom, and maybe the southeast bedroom. (3/13, EH p. 545.)

[6] All cites to the post-conviction evidentiary hearing are referenced by the month/day of the transcript, EH, and the page of the transcript.

[7] The State's testimony on multiple origins is particularly forced and implausible. Prosecution expert Nordskog claimed the flame impingement on Roann's body corroborated a floor level, long-burning fire at the foot of her bed. (4/26 EH pp. 917-919.) He further testified that he could tell from the burn patterns on Roann's body that the flames came from two different angles, one through the doorway from the kitchen and "impacted her left leg" and the second attacked her head "from the center of the room or alongside of the bed, somewhere in that area." (4/26 EH p. 918.)

affect their ability to read burn patterns. (Pet. Ex. B, pp. 26, 28-29.) This conclusion contradicts current fire science.

ARGUMENT

A. The Penal Code Section 1473 Standard.

Under California Penal Code section 1473(b), a person who is wrongfully convicted may seek relief where false evidence that was substantially material or probative on the issue of guilt or punishment was introduced against the person at a hearing or trial relating to the person's incarceration. (Pen. Code § 1473 ("Section 1473").) False evidence is "substantially material or probative" if it is "of such significance that with reasonable probability it could have affected the outcome of the trial." (*In re Wright* (1978) 78 Cal.App.3d 788, 814.) Furthermore, the 2014 revision of the definition of false evidence under Section 1473(e) provides that "false evidence" "includes opinions of experts that have either been repudiated by the expert who originally provided the opinion at a hearing or trial or that have been undermined by later scientific research or technological advances." (Pen. Code § 1473, subd. (e)(1).)

In the Parks case, advances in fire science now discredit both reliance on post-flashover burn patterns to identify the fire's origin, and use of "negative corpus" methodology to identify the fire's cause. These advances establish that the State's presentation of its fire expert testimony amounted to false evidence. (See *In re Malone* (1996) 12 Cal.4th 935, 966 [prosecution witness's false testimony regarding petitioner's confessions was substantially material as to felony murder

special circumstances allegations]; *In re Richards* (2016) 63 Cal.4th 291 [finding an expert's opinion at trial matching a bite mark on a murder victim's hand to the petitioner's teeth constituted false evidence because that opinion had "been undermined by later scientific research or technological advances," and holding it was reasonably probable that the false evidence affected the outcome of petitioner's jury trial].)

This false evidence was of such significance it affected the outcome of Ms. Parks' entire trial. Specifically, the State's experts' opinions provided the *only* evidence that the fire in the Parks' home was intentionally ignited. Because scientific advancements and understanding now render the underlying basis for these opinions unreliable, Parks is justifiably entitled to the extraordinary relief available under Section 1473.

B. The Problem of Unreliable and Antiquated Expert Testimony Plagues Older Arson Trials.

Unreliable expert testimony creates significant problems in criminal trials. Here, the State's experts offered faulty fire science opinions based on material misunderstandings—now undisputed—as to the occurrence of flashover at the fire to determine the fire's origin, and using the repudiated and unscientific negative corpus approach to determine the fire's cause.

In offering scientific expert testimony, the State makes a special claim on a jury's trust because such evidence offers a conclusion that lay jurors alone cannot themselves draw from the facts. Nor are lay jurors capable of evaluating the underlying scientific validity of the evidence without difficulty. (See *People*

v. Venegas (1998) 18 Cal.4th 47, 80 [noting that the *Kelly* test "is intended to forestall the jury's uncritical acceptance of scientific evidence or technology that is so foreign to everyday experience as to be unusually difficult for laypersons to evaluate."].)[8] Where

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[8] See also *Sargon Enterprises, Inc. v. Univ. of S. California* (2012) 55 Cal.4th 747, 772 (emphasizing the trial court's duty to act as a "gatekeeper" to exclude speculative expert testimony, and holding that the gatekeeper's role "is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field"); *Brown v. Los Angeles Unified Sch. Dist.* (2021) 60 Cal.App.5th 1092, 1111 (conc. opn. of Wiley, J.) ("The law worries about junk science in the courtroom. One concern is that a partisan expert witness can bamboozle a jury with a commanding bearing, an engaging manner, and a theory that lacks respectable scientific support."); *People v. Therrian* (2003) 113 Cal.App.4th 609, 614-15 ("[J]urors tend to ascribe an inordinately high degree of certainty to proof derived from an apparently 'scientific' mechanism, instrument, or procedure. Yet the aura of infallibility that often surrounds such evidence may well conceal the fact that it remains experimental and tentative."); *People v. Leahy* (1994) 8 Cal.4th 587, 595 ("Lay jurors tend to give considerable weight to 'scientific' evidence when presented by 'experts' with impressive credentials."); *see also* McQuiston–Surrett Saks, *Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact* (2008) 59 HASTINGS L.J. 1159, 1188 [recognizing that "most jurors begin with an exaggerated view of the nature and capabilities of forensic identification"]; Mann, *The CSI Effect: Better Jurors Through Television and Science?* (2006) 24 BUFF. PUB. INT. L.J. 211, 235 [discussing the unfortunate legal atmosphere where "the use of science, DNA in particular, is required to fix an injustice"]; Tyler, *Viewing CSI and the Threshold of Guilt: Managing Truth and Justice in Reality and Fiction* (2006) 115 YALE L. J. 1050, 1072 [summarizing poll conducted by National Opinion Research Center].)

expert testimony and conclusions turn out to be without foundation, the adversarial process cannot serve its essential truth-seeking function. Where, as here, the court, the prosecutor, and defense counsel all operated under the false assumption that the fire science at issue was valid and reliable, there was no meaningful adversarial testing of what we now know to be false evidence.

In the Parks case, the introduction of now discredited fire science "expert" testimony, proffered to the jury as infallible "scientific" evidence of guilt, was so unfair it resulted in a breakdown in the adversarial process in violation of her due process rights. (See *Brecht v. Abrahamson* (1993) 507 U.S. 619, 639 ["The Fourteenth Amendment prohibits the deprivation of liberty 'without due process of law'; that guarantee is the source of the federal right to challenge state criminal convictions that result from fundamentally unfair trial proceedings."] (Stevens, J., concurring); *In re Richards*, *supra,* 63 Cal.4th at 310, 315 [holding the evidence petitioner presented in prior habeas corpus proceedings established that new technological advances undermined expert witness' trial testimony, and that it was reasonably probable that such false evidence affected the outcome of the petitioner's jury trial]; *In re Malone*, *supra*, 12 Cal.4th at 966 [prosecution witness' false testimony regarding petitioner's confessions was substantially material as to felony murder special circumstances allegations]; *Souliotes v. Hedgpeth* (E.D. Cal. Apr. 26, 2012, No. 1:06–cv–00667) 2012 WL 1458087 [based, in part, on discredited fire investigation evidence introduced by

the prosecution at trial, court concluded defendant made a showing of actual innocence sufficient to serve as an equitable exception to applicable statute of limitations]; *Han Tak Lee v. Glunt* (3d Cir. 2012) 667 F.3d 397, 407 [scientific evidence on which conviction was obtained, but that was subsequently exposed as unreliable, would, if proven, set forth a *prima facie* case for granting *habeas* relief by showing that admission of state's fire expert testimony undermined fundamental fairness of petitioner's entire trial, since testimony was premised on unreliable science and so was unreliable]; cf. *United States v. Freeman* (7th Cir. 2011) 650 F.3d 673, 678-80 [affirming grant of *habeas* relief based, in part, on false testimony]; *Drake v. Portuondo* (2d Cir. 2009) 553 F.3d 230, 233 [affirming grant of *habeas* relief based on false expert witness testimony].)

Improper admission of evidence constitutes a denial of fundamental due process when that evidence was material to the outcome, such that it played a crucial, critical, and highly significant factor in securing the conviction. (See *Brown v. O'Dea* (6th Cir. 2000) 227 F.3d 642, 644-645.) Here, as explained, there can be no legitimate dispute that the testimony of the State's fire "experts" was material to Parks' conviction for murder by arson, which require a finding of intent. A defendant's fundamental right to due process requires that the prosecution may not present the jury with inaccurate or misleading evidence. (See *United States v. Scheffer* (1998) 523 U.S. 303, 309; *Caldwell v. Mississippi* (1985) 472 U.S. 320, 340; *Burr v. Florida* (1985) 474 U.S. 879, 881 (dis. opn. of Marshall, J.) ["If a convicted defendant

can produce sufficient indication that the jury's finding of guilt beyond a reasonable doubt was wrong, the institutional need for finality yields to the more compelling concerns of truth and fairness."]; see also Penal Code §1473.)

Grounded in unreliable and discredited forensic techniques, the fire science evidence the State presented at trial amounted to false evidence. To the extent that evidence, based on faulty arson science, had any probative value whatsoever, it was greatly outweighed by the prejudice it caused. An order granting Parks' petition under section 1473 would protect her due process rights and avoid a substantial miscarriage of justice. (See *Bedingfield v. Commonwealth* (Ky. 2008) 260 S.W.3d 805, 814-15.)

C. The Indicators of Arson Relied On By the State in Making its Case Against Joann Parks Are Now Known To Be Unreliable and Flawed.

The State's fire experts based their opinions of ultimate fact—that the fire in the Parks' home was intentionally ignited—on one shared belief: that the fire had two separate places of origin based on "burn patterns." The basis for these opinions has been scientifically disproven and shown to be unreliable. As a result, Parks' conviction, based on these unfounded opinions that the fire in her home was ignited intentionally, is flawed and violates due process.

All these opinions are based on the incorrect understanding of, and failure to account for, flashover. Flashover is "[a] transition phase in the development of a compartment fire in which surfaces exposed to thermal radiation reach ignition temperature more or less simultaneously and fire spreads rapidly

throughout the space, resulting in full room involvement or total involvement of the compartment or enclosed space." (NFPA 921 § 3.3.93.) Flashover itself is a recognized phenomenon, but the analysis performed by the State's fire experts did not account for it. Instead, they used "pre-flashover" burn pattern analysis that has been proven unreliable for analyzing post-flashover fires. (10/25 EH at 49.) The State's experts did not account for flashover at all, and their failure to do so rendered their opinions methodologically flawed given the new and more scientifically reliable understanding of the behavior of fires and the errors that may occur due to reliance on pre-flashover burn pattern analysis.

The State's experts also falsely assumed with absolute certainty that there were multiple places from which the fire originated, because there were two areas of greatest damage within the Parks home. Specifically, the State's experts testified that certain V-patterns found in both the living room and the southeast bedroom indicated two points of origin, thereby "proving" that the fire was intentionally set. This old "rule of thumb" has been discredited; it is now widely understood in the scientific community that a "V-pattern" simply points to where something was burning at *some* stage of the fire, not necessarily the origin.[9]

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[9] See Report of the Texas Forensic Science Commission (Apr. 15, 2011) Willingham/Willis Investigation, <http://www.fsc.state.tx.us/documents/FINAL.pdf>.

1. The State's Case Against Ms. Parks was Built on Fundamentally Flawed and Outdated Fire Science.

At trial, the State recognized during a sidebar that "[i]f a flashover occurred, that changes everything with regard to the arson investigation presented in this case so far." (14 RT 3746.) But in closing argument, the State attacked flashover, which was at the time a novel concept in fire science. The State raised arguments that are now known to be incorrect—and inconsistent with the State's post-conviction experts' views that flashover either occurred, or likely occurred, in the Parks residence. Instead of recognizing flashover and its impact on the reliability of burn pattern "evidence," the State discredited the very concept of flashover.

The State argued that the defense's theory regarding flashover was contrary to arson expert consensus. (19 RT 5132.) ("[W]hen the [defense expert] says flashover, that throws out all arson expert opinion.") Knowing that the occurrence of flashover could change the outcome of the fire investigation in Parks' case, the State argued to the jury that the basis for finding flashover in the Parks residence was a theory manufactured by the defense, based on a twisting of disputed facts: "So anyway [the defense expert has] got all the windows closed. Any door that he can close he closes it. You know why that is? Because that's the whole essence of flashover, the compartment. The smaller the compartment, everything else being equal, the more likely the flashover can occur." (19 RT 5132.)

The prosecution painted defense expert Lowe's conclusions about flashover as strategic devices employed by the defense to manipulate the jury into discrediting the prosecution's experts. (14 RT 3746.) The prosecution conveyed this characterization of flashover to the jury by characterizing flashover as an obsession of defense expert Lowe, rather than a well-supported and recognized scientific theory. The State's closing argument is littered with pejorative references to the term "flashover." Repeatedly, the prosecutor referred to the defense expert Lowe as "Flashover Lowe." (19 RT 5126; 20 RT 5253.) He argued "Lowe, for his flashover, flashover, flashover, flashover, that's all he talked about. He's even got flashover in the television set at one point. He loves that word. Flashover. Flashover." (19 RT 5131-5132; see also 19 RT 5135.) [10]

By repeatedly referencing "flashover" in the pejorative, the State painted an emotionally-appealing portrait for the jury that delegitimizes its occurrence (an occurrence that would later be

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[10] Lowe testified that older color television sets, which were seen as notorious for generating large quantities of heat, would build up a carpet of "highly combustible lint," as dust and animal dander settled within and on the set. (14 RT 3720-3721.) Consequently, Lowe explained, it was possible to get an "immediate flashover of fire" inside the television chassis. (14 RT 3721.) Though this testimony was used by the State to deride the concept of flashover altogether, it is now widely understood that flashover can occur in small spaces that generate enough heat. (Draeger, *The Flashover Phenomenon | Understanding the Nature of Flashover and Recognizing its Warning Signs* (2019) https://www.draeger.com/Library/Content/fire-flashover-wp-9108654-us-1912-1.pdf.)

accepted as true or likely by all the State's experts at the evidentiary hearing). But because the concept of flashover was not yet well-understood at the time of the Parks trial, the defense lacked the ability to rebut the State's repeated ridicule of the concept.[11] As a consequence, the jury received a distorted view as to flashover and what it meant for the case. The result was disastrous for Parks.

2. Fire Science Has Changed Significantly in the Thirty Years Since the Parks Trial.

As described below and as documented in the Exhibits attached to Ms. Parks' Petition, significant recent advances in the science underlying fire investigations have exposed the unreliability of the assumptions the State's investigators relied on in their testimony in the Parks trial.[12]

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[11] Scientific advancements are considered "new" when a scientific belief changes from being a minority opinion, to being a majority opinion. (See *State v. Edmunds* (2008 Wis. App) 746 N.W.2d 590, 595 [a defendant's proposed medical testimony was newly discovered when the experts available in 1997 would have offered minority opinions "disavowed by the mainstream" on shaken baby syndrome, whereas the defense experts in 2006 "explained that in the past ten years, a shift has occurred in the medical community around shaken baby syndrome, so that now the fringe views posited in 1997 are recognized as legitimate and part of a significant debate"].) The "emergence of a legitimate and significant dispute within the medical community as to the cause of those injuries . . . constitutes newly discovered evidence." (*Id.*) Here, the importance of flashover and unreliability of negative corpus are now beyond debate but this development is similarly newly emerged.

[12] Numerous peer-reviewed publications demonstrate the shift in scientific understanding of fire investigations. (See, e.g., Nat'l

Only in the past thirty years has fire science applied scientific methods to test and validate the "rules of thumb" that so many fire investigators commonly used. New, scientifically-supported standards for investigation and analysis have been developed.[13] This progress has not occurred uniformly across the nation's fire departments. Many "old-school" fire investigators

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Fire Protection Ass'n, *NFPA 921: Guide for Fire & Explosion Investigations* (2017) (hereinafter "NFPA 921"); Imwinkelreid & Gianneli, SCIENTIFIC EVIDENCE (Matthew Bender, 4th ed. 2015) Vol. 2, § 26.04; Wolf, *Habeas Relief From Bad Science: Does Federal Habeas Corpus Provide Relief for Prisoners Possibly Convicted on Misunderstood Fire Science?* (2009) 10(1) MINN. J. L. SCI. & TECH. 213; Dioso-Villa, *Scientific and Legal Developments in Fire and Arson Investigation Expertise in Texas v. Willingham* (2013) 14(2) MINN. J. L. SCI. & TECH. 817.)

[13] As early as 1977, the Department of Justice observed that no scientific evidence supported the widely accepted "rules of thumb" that fire investigators used as "indicators" of arson. (Custer, *Considerations for Arson Investigations in NFPA 921 – Guide for Fire and Explosion Investigations* (1995) in PROC. OF THE INT'L SYMP. ON THE FORENSIC ASPECTS OF ARSON INVESTIGATIONS 31, 32-33.) Yet it was really only in the past quarter century, i.e. the post-*Daubert* era, that there has been progress in fire science, particularly due to headline-grabbing cases such as that of Cameron Todd Willingham in Texas. (See Grann, *Trial by Fire* (Aug. 31, 2009) The New Yorker, <https://www.newyorker.com/magazine/2009/09/07/trial-by-fire>.) As a result, "courts are taking a more skeptical attitude toward many of the generalizations traditionally relied on by fire investigators . . . [and] experts are turning to more rigorous, scientific methods of analysis." (Imwinkelreid and Gianneli , SCIENTIFIC EVIDENCE, Vol. 2, § 26.01; see also Carman, *Science Trumps Art in Fire Investigation* (July 2011) 74(7) TEX. BAR J. 587 [discussing the historical development of forensic fire investigation techniques and standards].)

have clung to prior beliefs and assumptions, such as application of pre-flashover burn pattern analysis to post-flashover fires, despite that approach now being discredited. (See NFPA 921 § 3.3.93; see also 10/25 EH at 49.) Those very beliefs, used by the State to convict Joann Parks in 1993, are now recognized as false and unreliable when applied to a flashover fire, like that in the Parks' home.

The standards for fire investigations changed dramatically when the Technical Committee on Fire Investigations of the National Fire Protection Association (NFPA) promulgated guidelines in 1992, known as NFPA 921.[14] The product of significant advances in fire science, the new guidelines explained, among other things, that the widespread beliefs regarding the infallibility of burn indicators as evidence of arson were wrong. (See NFPA 921.) By 2000, the U.S. Department of Justice had formally endorsed NFPA 921 as the "standard of care" for fire investigations. (See National Institute of Justice, U.S. Dep't of Justice, *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel* (2000) <https://www.ncjrs.gov/pdffiles1/nij/181584.pdf> ["[NFPA 921 is] a benchmark for the training and expertise of everyone who purports to be an expert in the origin and cause determination of fires."].)

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[14] The National Fire Protection Association (NFPA) is a global nonprofit organization, established in 1896, devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. (NFPA, *About NFPA*, <http://www.nfpa.org/about-nfpa>.)

But the fire investigation community was slow to adopt the new guidelines, despite endorsement by government agencies. (See Wolf, *Habeas Relief*, *supra* at pp. 218-19; See also Carman, *Science Trumps Art In Fire Investigations* (July 2011) 74(7) TEX. BAR J. 587, 589-90; Carman, *Improving the Understanding of Post-flashover Fire Behavior* (2008) PROC. OF THE INT'L SYMP. ON FIRE INVESTIGATION SCIENCE AND TECH.; Plummer & Syed, *'Shifted Science' Revisited: Percolation Delays and the Persistence of Wrongful Convictions Based on Outdated Science* (2016) 64 CLEV. ST. L.REV. 483 (citing Lentini, SCIENTIFIC PROTOCOLS IN FIRE INVESTIGATION (2d ed. 2013) 13).)

Today, NFPA 921 is generally accepted as the standard in the fire investigation community. (See *Bunch v. Indiana* (Ind. Ct. App. 2012) 964 N.E.2d 274, 287 (*Bunch*).)[15] As described in section 6 below, only now has the fire science community

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[15] In fact, at least one court has found the failure to object to expert testimony that does not comply with NFPA 921 constitutes ineffective assistance of counsel. (See *United States v. Hebshie* (D. Mass. 2010) 754 F.Supp.2d 89, 92.) Moreover, in the context of civil insurance cases involving arson, NFPA is the recognized authority for fire investigation standards. (See, e.g., *United Fire & Cas. Co. v. Whirlpool Corp.* (11th Cir. 2013) 704 F.3d 1338, 1341 [finding trial court abused its discretion when it excluded expert testimony that was based on application of NFPA 921 methodology]; *Thompson v. State Farm Fire & Cas. Co.* (W.D. Tenn. 2008) 548 F.Supp.2d 588, 592 ["Courts have recognized NFPA 921 as a 'guide for assessing the reliability of expert testimony in fire investigations.'"]; *Travelers Indem. Co. v. Ind. Paper & Packaging Corp.* (E.D. Tenn. June 27, 2006) No. 3:02-cv-491, 2006 U.S. Dist. LEXIS 43851, at *12 ["The Court recognizes that NFPA 921 is a peer reviewed and generally accepted standard in the fire investigation community."].)

recognized that burn pattern analysis is not reliable post-flashover.

In 2009, the National Research Council, in connection with the National Academy of Sciences, published a report revealing significant deficiencies in multiple forensic disciplines, including fire investigation. (Nat'l Research Council of the Nat'l Academies, *Strengthening Forensic Science in the United States: A Path Forward* (2009) ("NAS Report").) The 2009 NAS Report constitutes the most definitive declaration from a scientific community recognizing the unreliability of outdated assumptions and methodology employed by prior arson investigations. Multiple courts have now granted *habeas* petitions based, in part, on the unreliability of faulty fire "science" evidence in earlier trials. (E.g., *Commonwealth v. Yell* (Logan Cir. Ct., Dec. 28, 2016, No. 04-CR-00232) (*Yell*) (Pet. Ex. W); *Han Tak Lee v. Houtzdale SCI* (3d Cir. 2015) 798 F.3d 159, 166-69; *Bunch*, *supra*, 964 N.E.2d at 288-89.)

As defense expert Paul Bieber testified in the Parks post-conviction hearing (10/25 EH at 49), and as recognized by other experts in the field, scientific studies have conclusively proven that the fundamental assumptions upon which the State's fire investigators relied in the Parks trial are, in fact, unreliable. [16]

The use of burn pattern analysis without accounting for flashover is one of the many aspects of outmoded fire "science"

[16] See Lentini, *Evolution of Investigation*, Criminal Justice (2012) at pp. 4-6.

that have been entirely debunked, but there are others as well.[17] As a leading legal treatise concluded, these advances demand greater scrutiny in arson cases:

> A quarter century ago, if the investigator encountered "indicators" of arson, he or she could be relatively confident in assuming that a flammable liquid had been poured in the area; the furniture, carpet, and other wall coverings normally present in a house could not have accounted for the indicators. Today, however, the investigator can no longer make that assumption. We now know that many of these indicators are "deficient for want of any established scientific validity." Indeed, the National Fire Academy has added a module entitled "Myths and Legends" to its course on Fire/Arson Origin and Cause Investigation.
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> . . .
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> Other research has confirmed that post-flashover room fires can sustain temperatures of over 2,000 degrees F, no matter how they are ignited. In light of the new research, the courts must take a more skeptical attitude toward the traditional generalizations on such topics as char, pour patterns, and spalling.

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[17] Other aspects of fire science recently determined to be unreliable include the common beliefs "that the lowest area of burn in a room was proof of origin . . . [, that t]he area of deepest char may indicate the origin of the fire . . . [,] that the smallest squares ["alligatored" wood] were ordinarily present at the point of origin . . . [,] that the presence of very small cracks in the glass was indicative of very intense heat or a rapid buildup of heat . . . [and that t]he occurrence of spalling can indicate the presence of . . . a source of localized heating such as a chemical incendiary." (Imwinkelreid & Gianneli, SCIENTIFIC EVIDENCE (Matthew Bender 4th ed. 2015) *Vol. 2,* § 26.04.)

(Imwinkelreid & Gianneli, SCIENTIFIC EVIDENCE (4th ed. 2015)*Vol. 2,* § 26.04.) As the authors concluded, "[q]uite frankly, some of the old bromides once popular among fire investigators have been exposed as myths. In particular, the growing scientific understanding of the phenomenon of flashover—'the transition from a fire in a room to a room on fire'—has undermined many of those bromides." (*Ibid*.)

3. Burn Pattern Analysis Without Accounting for Flashover Is Now Known to Be a Flawed and Unreliable Method to Determine the Point of Origin of a Fire.

As noted, the reliance on burn indicators for determining whether a fire originated at a single site or multiple sites has been discredited based, in part, on the fire science community's better understanding of "flashover" and how it severely undermines the reliability of burn pattern analysis. (See Lentini, *Evolution of Investigation*, *supra* at pp. 4-5.) It is now widely accepted that the unreliability of fire indicators grows exponentially with each second after flashover occurs. (See *Id.* at p. 7 [discussing the 2007 study by the ATF that tested investigator's accuracy 30, 70 and 180 seconds after flashover, and finding an accuracy rate of only 75% after just 180 seconds post-flashover].)

At trial, the State's experts relied on the discredited assumption that V-patterns and the lowest and deepest areas of char indicate the location of origin of a fire. (10 RT 2546-2547; 10 RT 2581.) At least three studies conducted after the Parks' conviction, however, have produced findings demonstrating that

burn pattern analysis is entirely unreliable once flashover occurs, and no studies have been conducted that even purport to support the State's theory of arson in this case. (See Carman, *Science Trumps Art*, *supra* at p. 590; Carman, *Improving the Understanding of Post-Flashover Fire Behavior* (2008) PROC. OF THE INT'L SYMP. ON FIRE INVESTIGATION SCIENCE AND TECH.; Carman, *Progressive Burn Pattern Development in Postflashover Fires*, Proceedings of Fire and Materials (2009), Interscience Communications;[18] see also Lentini*, Evolution of Investigation*, *supra*, at pp. 6-7.)

Other research has shown that just two-minutes of post-flashover burn significantly eliminates reliability of burn patterns to identify a source of origin or infer whether a fire was intentionally set. (*Ibid*.) In short, pre-flashover burn pattern analysis is no longer a reliable method for drawing conclusions regarding the origin for fires that may have reached flashover.

The failure of the State's experts to account for flashover is particularly important in this case, where a number of facts indicate the fire reached flashover: (1) Officer Bruce's statements that the southeast bedroom was dark and filled with smoke, and only *after* he broke the window did flames engulf the room (15 RT 3830-3831, 3833); (2) the defense expert's testimony explaining that when Officer Bruce broke the window, he let fresh air into a

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[18] Copies of these reports documenting the inaccuracy of burn pattern analysis in post-flashover fires are available at retired ATF Special Agent, Steven W. Carman's website: <http://carmanfireinvestigations.com/publications/>.

carbon monoxide filled room, causing flashover (14 RT 3799-3800); (3) the witness statements that the master bedroom door and front door were opened during the fire, and every window in the Parks' home failed, causing outside air to enter the space and interact with other surfaces, leading to contradictory damage not necessarily related to origin (01/31 EH pp. 390-391); (4) the windows and doors in the converted garage were relatively large for the small house, causing large airflow paths. (01/31, EH p. 390.)

According to the Los Angeles Superior Court's October 28, 2018 decision, the State's three experts all concluded that flashover occurred, but that it did not affect the experts' ability to read burn patterns. (Ex. B to Petition, p. 26 [citing 03/13 EH p. 546; 04/25 EH at p. 817; 04/26 EH at 977].) But rather than rely on the prosecution experts' subjective opinions, and their exaggerated views as to their own skills and abilities, the court should have relied on the objective scientific evidence presented showing that pattern reading post-flashover is simply unreliable.[19]

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[19] See, e.g., *Yell*, *supra,* No. 04-CR-00232 at page 8 ("Under modern fire investigation methodology, full room involvement invalidates pattern analysis to determine points of origin."); *Commonwealth v. Rosario* (2017) 477 Mass. 69, 75, 80-81 (affirming new trial based, in part on expert explanation that "[o]nce flashover occurs, there is 'full room involvement,' where the intensity of the fire—and, as a result, the burn patterns—may vary depending upon the areas of ventilation. Once this happens, the point of a fire's origin cannot be accurately identified because the fire causes the most damage in areas

4. "Negative Corpus" Is Now Known to be a Flawed and Unreliable Methodology in Determining the Cause of a Fire.

In concluding that the fire at the Parks residence started by the application of "an open flame by human hand," Ablott also improperly relied on "negative corpus." (12 RT 3030-3031.) In essence, the State's witnesses testified at trial that because they were supposedly able to eliminate all the potential accidental causes of the fire's origin, the fire must have been started by incendiary means. (12 RT 3054.)

But the entire basis for the State's negative corpus approach was based on a flawed, preconceived opinion of the fire's origin, and its investigators' decision to collect and review only the evidence that would confirm this bias. Specifically, in forming his opinions that the electronic devices found in the Parks home were not the cause, Ablott stated he relied on retained forensic expert William Armstrong's findings. (12 RT 3049, 3053-3054.) But the television and VCR were not among the pieces of evidence forensically examined by Armstrong, and Armstrong did not reach an opinion on either as potential causes of fire, because they were not within the purported area of origin as defined by Ablott. (10 RT 2494-2496, 2499.)[20] This flawed testimony, presented to the jury by purported experts under the

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where there is more oxygen available, generally near doors and windows."); see also cases cited in Section 6 below.

[20] Even under a process of elimination approach, the State's failure to eliminate the Parks' television set and VCR as potential causes of the fire is fatal to Ablott's analysis.

guise of forensic science, resulted in conviction.

Fire science has moved away from the use of negative corpus. The use of that approach with fire cases is particularly unreliable because, unlike other crimes where physical evidence lingers, such as a shooting or rape, the evidence showing a fire was intentionally—or accidentally—ignited is often consumed by the fire itself. As one commentator noted, exacerbating the problem of negative corpus is the well-documented fact that fire experts are notoriously inept at determining the source of a fire. (See Beety & Oliva, *Evidence on Fire* (2019) 97 N.C. L. Rev. 483, 509 [citing Carman study that found that less than 6% of attendees accurately identified the fire origin in a room that burned two minutes post flashover].)

Since 2011, the NFPA has rejected the use of negative corpus methodology in investigating the causes of fires—if the cause cannot be determined, the fire must be classified as "undetermined." As the most recent iteration of NFPA 921 explains:

> **19.6.5.1 Cause Undetermined.** In circumstances where all hypotheses have been rejected, or if two or more hypotheses cannot be rejected, the only choice for the investigator is to conclude that the fire cause, or specific causal factors is undetermined. It is improper to base hypothesis on the absence of any supported evidence. That is, it is improper to opine a specific fire cause, ignition source, or fuel that has no evidence to support it even though all other hypothesis elements were eliminated.

(NFPA 921 § 19.6.5.1) [21]

"Negative corpus" is an approach not only unscientific, but also antithetical to our system of justice, under which all are presumed innocent and it is the State's burden to prove each element of the crime charged. (CALCRIM No. 103) Not surprisingly, many courts around the country have rejected negative corpus as a basis for finding arson. (See, e.g., *Michigan Millers Mut. Ins. Corp. v. Benfield* (11th Cir. 1998) 140 F.3d 915, 921 [finding no abuse of discretion in district court's decision to strike an expert who came to his conclusion that a fire was intentionally set "largely because he was unable to identify the source of the ignition of the fire."]; *Amica Mut. Ins. Co. v. Willard* (E.D. Mo. Sept. 14, 2009) 2009 WL 2982902, at *6 [denying expert testimony that fire intentionally set, since "based upon [expert's] speculation, in effect, that a

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[21] The current version of NFPA 921 builds on earlier criticism of negative corpus. In 2011, the following was added to NFPA 921:

> **Inappropriate Use of the Process of Elimination**. The process of determining the ignition source for a fire, by eliminating all ignition sources found, known, or believed to have been present in the area of origin, and then claiming such methodology is proof of an ignition source for which there is no evidence of its existence, is referred to by some investigators as "negative corpus" . . . This process is not consistent with the Scientific Method, is inappropriate, and should not be used because it generates un-testable hypotheses and may result in incorrect determinations of the ignition source and first fuel ignited. Any hypothesis formulated for the casual factors (*e.g.*, first fuel, ignition source, and ignition sequence), must be based on facts. Those facts are derived from evidence, observations, calculations, experiments and the laws of science. Speculative information cannot be included in the analysis.

human cause is the reason there is no direct evidence how the fire began"]; *Robinson v. State* (2018) 56 Kan.App.2d 211 [upholding new trial for defendant based on trial counsel's deficient and prejudicial failure to challenge "negative corpus" testimony by expert]; *American Family Ins. Co. v. Johnson* (Ohio Ct. App. 8th Dist. 2010) 2010-Ohio-1855, 2010 WL 1712240, at *4 [rejecting the fire investigator's conclusion that, because he could not find an electrical source for the fire, the fire was most likely set by an open flame, either by matches or a lighter, as being not credible]; *Somnis v. Country Mut. Ins. Co.* (D. Minn. 2012) 840 F.Supp.2d 1166, 1172-73 & n.2 [expert able to testify as to his investigation of the absence of accidental causes but was precluded from relying on "negative corpus" method, therefore could not state opinion that the fire was incendiary because that opinion would not "assist the trier of fact to understand the evidence or to determine a fact in issue."]; *Russ v. Safeco Ins. Co. of America* (S.D. Miss. 2013) 2013 WL 1310501, at *25 [finding improper expert opinion based on "negative corpus" reasoning to testify as to the cause of the fire]; *Trias v. State Farm Fire & Casualty Company* (N.D. Ga. 2020) 2020 WL 3399915, at *13 [expert only may testify as to his methodology and observations including that he could not identify an accidental cause for the fire, but is precluded from testifying the fire was incendiary, on the basis that it "would not be helpful because it would not tell the jury anything that lay persons could not logically deduce on their own. He would be drawing his conclusion in the same manner as lay persons, i.e., by exercising simple logic."].

Despite its broad criticism, the State continues to treat negative corpus methodology as if it were an accepted and unquestionable part of California criminal law. Its lack of recognition in leading California treatises and the CALCRIM jury instructions indicates otherwise. Neither the Witkin treatise on Criminal Law nor Evidence mention the doctrine of negative corpus. (See generally Witkin (2020) Cal. Evid. 5th Burden §§ 23, 24, 624 [collecting United States Supreme Court Cases that establish the "presumption of innocence" standard, observing that the presumption is an "'assumption' that is indulged in the absence of contrary evidence," but making no mention of negative corpus methodology]. Likewise, the Rutter Practice Guides on California Criminal Law and California Criminal Procedure also do not discuss negative corpus. And negative corpus is nowhere mentioned in the California Judicial Council's Criminal Jury Instructions.

The modern rejection of negative corpus as a legitimate methodology for determining a fire's cause raises substantial questions about the reliability of the fire investigators' conclusions here. Under modern methodologies, the correct classification for this fire should have been "undetermined cause." (NFPA 921 § 19.6.5.1; 11/15 EH pp. 157-158, 189; 02/01 EH p. 509.) Ablott's testimony that he could conclude the fire was intentionally caused merely through process of elimination constitutes false evidence (14 RT 3578), and it had a material impact on the jury's decision to convict Ms. Parks.

5. The Parks Conviction Also Raises Concerns Regarding Bias Against Female Criminal Defendants.

The Parks conviction also raises troubling issues regarding the prosecution's use of bias against female criminal defendants. Throughout their closing arguments, the State made numerous prejudicial comments concerning Parks' lack of serious injury resulting from the fire, her lack of "maternal instincts," and her general demeanor, as indications of her guilt. (See, e.g., 20 RT 5310 ["Her lack of fire damage with what else you find in your mind, in and of itself, tells you guilty of executing her children"], 5311, 5326-27, 5520, 5522-5523 [" what do people do in situations, and yes people are different, but there is that maternal instinct"], 5526, 5527-28 ["wouldn't you expect a mother, generally speaking, whose husband is away at work and has small children that she would have a door open to her room?"].) The State additionally raised Parks' tubal ligation, or "sterilization," as the prosecution described it, to support the State's claim as to possible motive: "she didn't want the kids anymore." (20 RT 5380.)

Recent and startling statistics demonstrate how insidiously effective bias against women criminal defendants can be when wielded by the prosecution. According to data from the National Registry of Exonerations, 73% of female exonerees in the last three decades were wrongfully convicted of crimes that never occurred—the events ultimately were determined to be accidents, deaths by suicide, or crimes that were fabricated. (Shelby, *8 Facts About Incarcerated and Wrongfully Convicted Women You*

Should Know (March 1, 2021), Innocence Project <https://innocenceproject.org/women-wrongful-conviction-incarceration-facts-iwd2020>.) Furthermore, at least 87 women whose convictions were overturned had cases that involved errors in forensic testing, information based on unreliable or unproven forensic methods, fraudulent information or evidence, or forensic information presented with exaggerated and misleading confidence—all of which contributed to the women's wrongful convictions. (*Ibid.*)

Here, the claims made by the State against Parks played on the same kind of false, exaggerated, and misleading bias as to how a woman and mother "should act" and her character and fitness as a mother, arguments demonstrating a clear and targeted bias.

6. Advances in Fire Science Have Led Courts Across The United States to Throw Out Old Arson Convictions When It Is Shown The Convictions Were Based on Flawed and Outdated Fire Science.

Because of the evolution of fire science since the Parks trial, courts across jurisdictions have recognized that fire science advances undermine prior arson convictions, requiring reversal and new trials. (See, e.g., *Yell*, *supra,* No. 04-CR-00232 at page 8 [granting new trial, ruling in part that experts' multiple points of origin testimony "was unreliable and baseless and should not have been admitted into evidence[,]" explaining "[u]nder modern fire investigation methodology, full room involvement invalidates pattern analysis to determine points of origin."]; *Bunch*, *supra,* 964 N.E.2d at 288-89 [finding that advances in fire victim

toxicology analysis constituted newly-discovered evidence which warranted new trial on felony murder charge arising out of mobile home fire, reasoning that evidence supported argument that defendant did not set multiple incendiary fires]; *Han Tak Lee*, *supra*, 798 F.3d at 166-69 [affirming grant of *habeas* relief for a 1990 homicide conviction resting on now discredited fire investigation evidence]; *Souliotes*, *supra*, 2012 WL 1458087 [where the fire investigation evidence introduced by the prosecution had been discredited, court concluded a showing of actual innocence had been established sufficient to serve as an equitable exception to the applicable statute of limitations].)

In both *Han Tak Lee* and *Souliotes*, the prosecution conceded that the fire investigation evidence that was originally used to convict had been discredited and was unreliable. (*Han Tak Lee*, *supra*, 798 F.3d at 161, 167 [noting that where the prosecution's experts originally opined that a fire was intentionally set based on deep charring and crazed glass purportedly evidencing a fire started with accelerants, and burn patterns purportedly evidencing multiple sites of origination, "[t]he Commonwealth [later] concede[d] that, due to scientific developments since Lee's trial in 1990, the basis for all of this evidence is now invalid"]; *Souliotes*, *supra*, 2012 WL 1458087, at *2-4 [noting that the prosecution recanted its prior expert testimony that the fire was arson because of the unusually high heat purportedly evidenced by "pour patterns" burnt on the floor, deep charring of walls, a light amount of combustible material within the motor home, and results from a hand-held

hydrocarbon detector used at the scene of the fire, and instead, stipulated that it was not possible to determine the cause of the fire].)[22] The experts in both *Han Tak Lee* and *Souliotes* relied on burn patterns that were essentially meaningless because the experts had failed to account for flashover, the same mistake made by the State's experts in the Parks trial.

Moreover, three state legislatures have passed resolutions explicitly stating that convictions based on methods inconsistent with NFPA 921 require post-conviction judicial review. (Okla. Sen.Res. No. 99, 52nd Leg., 2d Sess. (Okla. 2010); Ariz. H.Con.Res. No. 2066, 49th Leg., 2d Reg. Sess. (Ariz. 2010); Neb. Legis.Res. No. 411, 101st Leg., 2d Sess. (Neb. 2010).)

Due to the recent acceptance of advancements in fire science, courts considering arson cases will now exclude expert opinions inconsistent with NFPA 921 methods and guidelines as unreliable.[23]

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[22] Souliotes was eventually found entitled to *habeas* relief based on, among other things, ineffective assistance of counsel for failure to present expert fire science evidence at trial. (See *Souliotes v. Calif. Victim Compensation Board* (2021) __Cal.App.5th __, No. B295163 [explaining procedural history in related subsequent case] pet. for review pending, No. S267930.

[23] See, e.g., *Travelers Cas. Ins. Co. of Am. ex rel. Palumbo v. Volunteers of Am. Ky., Inc.* (E.D. Ky. Aug. 21, 2012, No. 5:10-301-KKC) 2012 WL 3610250, at *2 (explaining that NFPA 921 requires deviations from its procedures to be justified and requires that the scientific method be used in every case); *Barr v. Farm Bureau Gen. Ins. Co.* (Mich. Ct. App. 2011) 806 N.W.2d 531, 533 (similar); *Werth v. Hill-Rom, Inc.* (D. Minn. 2012) 856 F.Supp.2d 1051, 1060, 1063 (holding expert testimony inadmissible for failure to apply NFPA 921 methodology reliably);

The testimony of the State's fire experts in the Parks case materially impacted the jury's verdict. No other evidence was presented to establish that the fires was intentionally ignited. Therefore, in light of the fire science community's greater understanding of flashover based on advances in fire science and how it discredits the past use and reliance upon burn pattern analysis, it is reasonably certain that the outcome of Ms. Parks'

United States v. Myers (S.D.W.Va. July 8, 2010, No. 3:10-00039) 2010 WL 2723196 (excluding evidence of a dog's alerts unconfirmed by laboratory tests, as required by NFPA standards); *Fireman's Fund Ins. Co. v. Canon U.S.A., Inc.* (8th Cir. 2005) 394 F.3d 1054, 1058 ("NFPA 921 requires that hypotheses of fire origin must be carefully examined against empirical data obtained from fire scene analysis and appropriate testing. The district court did not abuse its discretion in concluding that Anderson and Wald did not apply this standard reliably to the facts of the case."); *Presley v. Lakewood Eng'g & Mfg. Co.* (8th Cir. 2009) 553 F.3d 638, 646 (stating district court properly concluded that an expert failed to apply the standards of NFPA 921 reliably to the facts of the case where the expert's theory required too great an inferential leap from principles of NFPA 921); *Indiana Ins. Co. v. Gen. Elec. Co.* (N.D. Ohio 2004) 326 F.Supp.2d 844, 854 (concluding plaintiff's expert's investigation was unreliable and inadmissible for failing to follow NFPA 921); see also *Tunnell v. Ford Motor Co.* (W.D. Va. 2004) 330 F.Supp.2d 707, 725 ("Many courts have recognized NFPA 921 as 'a peer reviewed and generally accepted standard in the fire investigation community.'"); *McCoy v. Whirlpool Corp.* (D. Kan. 2003) 214 F.R.D 646, 653 ("The 'gold standard' for fire investigations is codified in NFPA 921, and its testing methodologies are well known in the fire investigation community and familiar to the courts."); *Royal Ins. Co. of Am. v. Joseph Daniel Constr. Inc.* (S.D.N.Y. 2002) 208 F.Supp.2d 423, 426 (denying motion to exclude expert testimony where expert relied on NFPA 921, stating "[t]he NFPA 921 sets forth professional standards for fire and explosion investigations.")

trial would have been different if such information was presented at trial. Upholding Parks' conviction on the basis of such unreliable opinion testimony violates her right to due process.

CONCLUSION

For the foregoing reasons, The Innocence Network respectfully urges this Court to grant the relief requested in Joann Parks' petition.

Respectfully submitted,

Dated: June 3, 2021

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Pursuant to California Rules of Court, Rule 8.200(c) and 8.204(c)(1), I certify that this Combined Respondents' Brief contains 11,018 words, based on the Microsoft Word program, and not including the Tables of Contents and Authorities, the caption page, signature blocks, any attachments or this certification page.

Dated: June 3, 2021

/s/ Paul J. Killion
Paul J. Killion

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Killion, Paul (124550)
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