BY THE COURT:

DATE SIGNED: July 10, 2023

Electronically signed by Jean Marie Kies
Circuit Court Judge

STATE OF WISCONSIN CIRCUIT COURT MILWAUKEE COUNTY

STATE OF WISCONSIN,

PLAINTIFF,

V. CASE NO. 2022CF001644

JULIUS ALFONSO COLEMAN,

DEFENDANT.

DECISION and ORDER

PROCEDURAL HISTORY

Mr. Julius Coleman is charged in Count 1 of the criminal complaint and information in this case with First Degree Intentional Homicide, Use of a Dangerous Weapon, contrary to Wis. Stats. §§940.01(2)(a), 939.50(3)(a) and 939.63(1)(b), and Count 2, Possession of a Firearm by a Felon, contrary to Wis. Stats. §§ 941.29(1m)(a) and 939.50(3)(g). The State alleges that on or about Friday, April 8, 2022, at 350 East Smith Street, in the City of Milwaukee, Wisconsin, Mr. Coleman caused the death of JLM, another human being, with intent to kill that person, while armed with a dangerous weapon. Further, the State alleges that on that date, Mr. Coleman possessed a firearm, having been previously convicted of a felony in this state. As part of the investigation in this case, police recovered 6 fired casings at the scene; further, police recovered a 9mm handgun from Mr. Coleman that the State contends was used as the murder weapon. The medical examiner also recovered bullet fragments from the victim's body during the autopsy, and MPD recovered additional bullet fragments found in the vehicle where the victim was seated during this homicide.

The bullet fragments from the autopsy and the vehicle were sent to the Wisconsin State Crime Lab for testing and analysis and comparison to the gun recovered from Mr. Coleman. Firearms and Toolmarks Examiner Xai Xiong test-fired the 9 mm handgun that was recovered from Mr. Coleman at time of arrest and used the spent casings and bullets to compare with the bullet fragments found in the vehicle and victim's body during the autopsy. Based upon his examination, Mr. Xiong concluded that the bullet fragments recovered from the vehicle and the victim's body were fired through the barrel of the firearm recovered from the defendant at the time of his arrest.

On July 22, 2022, the defense filed a motion to exclude that State's expert witness testimony given by Mr. Xiong based on the principles of *Daubert*. The State filed a response to the Defense's Motion to Exclude this evidence. A hearing was held on Friday, May 5, 2023 wherein testimony was taken from Mr. Xiong. At the close of the evidence, the court set a briefing schedule. The parties submitted their briefs. The matter is now before the court for decision.

FINDINGS OF FACT

The court has reviewed the criminal complaint, the parties' motion briefs, the transcript of the testimony elicited at the motion hearing from Mr. Xai Xiong, and the written closing arguments or summations by the parties. The court has also reviewed Mr. Xai Xiong's Statement of Qualifications (Exh. 1), a treatise entitled "Accuracy of comparison decisions by forensic firearms examiners" authored by Keith L. Monson, PhD, Erich D. Smith, MSFS, and Eugene M. Peters, PhD (Exh. 2) that was relied upon by Mr. Xiong, and an April 26, 2022 Confidential Report of Laboratory Findings for Case No. R22-1112 and attachments that relate to Mr. Xiong's examination of the

firearm and ballistics evidence found in this case (Exh. 3). Therefore, the court makes the following findings:

Mr. Xai Xiong is a Technical Unit Leader-Firearms and Toolmarks Examiner-Advanced at the Wisconsin State Crime Laboratories. (Tr. 6; Exh.1). In addition to his duties as a Firearms and Toolmarks Examiner, Mr. Xiong oversees and coordinates all training, quality assurance and technical aspects of his Unit. *Id.* He is responsible for ensuring his Unit's compliance with the Wisconsin State Crime Laboratories' quality assurance program and accreditation criteria. *Id.* Mr. Xiong was employed with the crime lab from June 13, 2013 to December 20, 2020 as a Firearms and Toolmarks Examiner- Advance, and was promoted to be the Technical Lead of that Unit on December 20, 2020, a position he currently holds. (Tr. 7; Exh.1). He has a Bachelor of Science degree in Biology from University of Wisconsin-Eau Claire, and a minor in Chemistry. *Id.* After achieving this degree, he completed the Wisconsin State Crime Lab Firearms and Toolmarks Training Program, a 24 month apprenticeship. *Id.* He has continued with relevant coursework and continuing education, primarily by attending training seminars presented by the Association of Firearms & Toolmarks Examiners (AFTE). (Tr. 9; Exh. 1). He has completed a Forensic ISO/IEC Technical Assessor Course, (Tr. 9), which qualifies him to be certified to serve as an assessor of quality assurance for other labs. He is a member of AFTE as well. (Tr. 10). While he has not presented at AFTE trainings, Mr. Xiong has lectured at West Virginia University, UW-Milwaukee and the University of Wisconsin Law School; he has also trained other

examiners, technicians[1] and police officers. (Exh. 1). Further, he has participated in research projects related to Firearms and Toolmarks. *Id.* Mr. Xiong has done tens of thousands of tool mark examinations, and has testified in court over 100 times, each time being qualified as an expert witness. (Tr.40).

Mr. Xiong explained that forensic toolmark identification is a discipline that is concerned with the matching of a toolmark to the specific tool that made it. (Tr. 14). Firearms identification is a specialized area of toolmark identification dealing with firearms, which involves a specific category of tools. (Tr. 13). Toolmarks associated with a firearm may occur in the commission of a crime when the internal parts of the firearm make contact with the brass and lead that comprise ammunition. (Tr. 16). Toolmark identification is based on the theory that tools used in the manufacture of a firearm leave distinct marks on various firearm components, such as the barrel, breech face or firing pin. (Tr. 20). The theory further posits that the marks are individualized to a particular firearm through changes the tool undergoes each time the metal is cut and scraped during the manufacture of that weapon. *Id.* Toolmark identification rests on the premise that, even two guns produced at the same time off the same production line, will bear microscopically different marks. (Tr. 21). When the gun is fired, these toolmarks are transferred to the surface of a bullet or cartridge casing. (Tr. 22).

When an examiner compares a test bullet or cartridge fired from a firearm of known origin to another bullet or cartridge of unknown origin, the examiner looks for

[1] Mr. Xiong is a NIBIN Authorized Trainer, and has trained approximately 10 other technicians including some technicians employed by the Wisconsin State Crime Laboratories. (Tr. 12).

congruence in the pattern of marks left on the examined specimens. (Tr. 18). This process is known as "pattern matching." Mr. Xiong described the patterns found on fired bullets and spent cartridges as resembling bar codes or constellations. (Tr. 21).

Mr. Xiong testified that in the process of examining spent bullets (as well as fragments) and cartridges, he looks for three types of characteristics: class, subclass and individual characteristics. Class characteristics are features common to most if not all bullets and cartridge cases fired from a type of firearm, such a caliber and the number of lands and grooves on a bullet. (Tr. 19). Individual characteristics are microscopic markings produced in the manufacturing process by random imperfections of a tool surface and by use or damage to the gun post-manufacture. (Tr. 20). Finally, subclass characteristics generally are those produced incidental to manufacture but apply only to a subset of firearms produced. (Tr. 20). When the casings or bullet fragments, viewed under a comparison microscope (Tr. 16) by a trained and experience firearms examiner, evince sufficient duplication of markings that they can be considered individual characteristics, then the theory is that the likelihood that another gun could have made those marks is wholly remote and that theory is discounted by the examiner. (Tr. 23).

In this case, Mr. Xiong examined the Taurus model G3 9mm semi-automatic weapon that was recovered from Mr. Coleman. (Tr. 32; Exh.3-Item I). Mr. Xiong test-fired the weapon. (Tr. 34). The firearm had six lands and grooves, a right-hand twist rifled barrel and one magazine. *Id.* Further, he examined one fired 9mm caliber jacketed hollow point bullet with six lands and groves that also had a right-hand twist riling impression. (Exh.3-Item A). He also examined four (4) bullet jacket fragments with

right-hand twist rifling impressions. (Exh.3-Items C,D, E & H). Finally, he examined one (1) fired 9mm caliber full metal jacket bullet with six (6) lands and grooves right-hand twist rifling impression. (Exh.3-Item G). Two lead bullet cores were not suitable for firearm identification comparisons. (Exh.3-Items B &F). Based upon the reproducibility of class characteristics and microscopic individual characteristics, Mr. Xiong opined that the six (6) fired projectiles labeled Lab Items A, C, D, E, G & H were fired through the barrel of Item I, namely the Taurus pistol confiscated from the defendant in this case. (Exh.3). He made these conclusions to a reasonable degree of professional certainty. (Tr. 36). Mr. Xiong explained: "[T]hat basically means that my expectation would be another qualified examiner performing the same type of examination will come to the same conclusion as me." *Id.* In fact, his opinions were peer reviewed by another qualified examiner, Troy Chadwick, who came to the same conclusions. (Tr. 39). Peer review is required for all accredited forensic science laboratories including the Wisconsin Crime Lab.

Finally, Mr. Xiong discussed black box studies that assessed the performance of forensic firearms examiners in the United States. (Tr. 26 et seq.). Mr. Xiong referred to a study known as the FBI AMES Study 2 that showed the false positive error rate for forensic firearms examiners was less than one percent.[2] (Tr.27; Exh. 2). This Black Box study assessed the performance of forensic firearms examiners across the United States and found the over-all false positive error rate was 0.656% for bullets and 0.933% for

[2] *See, e.g.,* State's Exh. 2, Monson, KL, Smith ED, Peters EM, *Accuracy of comparison decisions by forensic firearms examiners,* J Forensic Sci. 2023:68:86-100. https://doi.org/10.1111/1556-4029.15152

cartridge cases. The overall false-negative error rate was 2.87% for bullets and 1.87% for cartridge cases. The study found that the majority of errors were committed by a limited number of examiners.

ADMISSIBILITY OF FIREARMS AND TOOLMARKS ANALYSIS

Mr. Coleman challenges the admissibility of the expert firearms identification opinion insofar as it asserts that a particular discharged bullet, bullet fragment or spent shell was fired from a particular gun, to the exclusion of all other guns. This individualized identification, the defendant argues, is based on a theory – that is, there is no proof that firearms in fact make unique and reproducible marks on bullets - that has not been proven scientifically, and is vulnerable to the subjective judgment of the examiner. In his written motion in support of this argument, the defendant points to a report commissioned by President Obama from the President's Council of Advisors on Science and Technology. The report, *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods,*[3] calls into question the contention that firearms in fact make unique and reproducible marks on bullets and casings. Mr. Coleman criticizes the theory and methodology of toolmark identification as flawed science. *Kumho Tire,* however, instructs that the reliability of expert testimony does not turn on the ground of the expert's opinion in scientific principles. Rather, the Supreme Court ruled that a trial court has "considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable." *Kumho*

[3] President's Council of Advisors on Science and Technology, *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods (2016),* https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf

Tire, 526 U.S. at 152, 119 S.Ct. 1167. Further, *Kumho Tire* makes it clear that expert testimony on matters of a technical nature or related to specialized knowledge, even though not scientific, can be admissible under FRE 702, so long as the testimony satisfied the Court's test of reliability and the requirement of relevance. This Court expresses no opinion on whether the practice of firearms and toolmark identification constitutes a "scientific" discipline because that is not the question before the court. Rather, this court will consider whether the State's proffered expert opinion is reliable according to the principles of *Kumho Tire.* Therefore, this Court will analyze the reliability of Mr. Xiong's proposed opinion based on the applicable *Daubert* factors.

DAUBERT FACTOR ANALYSIS

In Wisconsin, the admissibility of expert opinion evidence is assessed in light of §907.02, Wis. Stats. The statute, as amended in 2011 to incorporate the standards set forth in *Daubert v. Merrell Dow Pharm.,* 113 S.Ct. 2786 (1993), reads as follows:

> **907.02 Testimony by experts.**
> **(1)** If scientific, technical, or other specialized knowledge would assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if the testimony is based upon sufficient facts or data, the testimony is the product of reliable principles and methods, and the witness has applied the principles and methods reliably to the facts of the case.

The statute embodies "three threshold requirements" for admitting expert testimony: the witness must be *qualified*; the witness's testimony must be *relevant*; and per the statutory amendment adopting the *Daubert* standard, the witness's testimony must be *reliable. State v. Hogan,* 2021 WI App 24, ¶19, 397 Wis. 2d 171, 959 N.W.2d 658.

All of these inquiries must be met by the preponderance of the evidence. The trial judge acts as the gatekeeper to ensure these requirements are met. *State v. Jones,* 2018 WI 44, ¶¶29-31, 381 Wis.2d 282, 911 N.W. 2d 97. The court's role is "to focus on the principles and methodology the expert relies upon, not on the conclusion generated." *State v. Giese,* 2014 WI App 92, ¶18, 356 Wis. 2d 796, 854 N.W.2d 687.

Since Wisconsin adopted the federal standard, the trial judge now has to determine whether the testimony is reliable enough to go to the fact-finder. *Hogan,* 397 Wis. 2d 171, ¶1. Even considering reliability, the standard to admit such evidence is "not exceedingly high; the court's role [is to ensure] that the courtroom remains closed to junk science." *State v. Jones,* 381 Wis. 2d 284, ¶33, 911 N.W. 2d 87 (quoting *Seifert,* 372 Wis. 2d 525, ¶85). The goal is to prevent the jury from hearing conjecture dressed up as expert opinion. *Id.* "[T]he appropriate means of attacking 'shaky but admissible' expert testimony is by "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof." *Seifert,* 372 Wis. 2d 525, ¶86.

1. Is the witness qualified?

Herein, Mr. Coleman does not object to Mr. Xiong's qualifications.[4] Even had Mr. Coleman objected, the State has proven by the preponderance of the evidence that Mr.

[4] At the May 5, 2023 Motion Hearing, defense counsel advised the court (before testimony was taken) that he was not the original lawyer who filed the motion in this case seeking to completely exclude the testimony of Mr. Xiong. Rather, Attorney Plaisted clarified that, "I don't think and I don't think Your Honor thinks that that's (sic) really a question if the expert's qualified. . . .I told Your Honor before we went on the record and everyone really is that my goal is to limit the expert testimony in this area if this examiner is so qualified to only saying that this gun that's the subject of his testing cannot be excluded as the gun that fired the bullet or bullet fragments that were found in this case. . . .I think in terms of toolmark expert testimony I think his conclusions should be limited to that." (Tr. 4-5).

Xiong qualifies as an expert by reason of his knowledge, skill, experience, training and education. Mr. Xiong has a bachelor's degree in Biology plus additional on the job training. He has worked as a Firearms and Toolmarks Examiner-Advance since 2013. He is now the technical unit leader. As a Firearms and Toolmarks Examiner, Mr. Xiong has performed tens of thousands of examinations. (Tr. 39). He has engaged in continuing education including attending AFTE Training seminars and reviewing literature. Mr. Xiong has trained other technicians and examiners. His work is peer reviewed. Mr. Xiong has also testified in court before this case over 100 times—each time being qualified as an expert in his field. (Tr. 40). He has testified about evaluating a firearm, two fired bullets and four bullet fragments. Mr. Xiong followed the protocols required of the Wisconsin State Crime Lab, an accredited agency that uses practices widely accepted by scientific laboratories across the country. The crime lab employs the theory of toolmark identification adopted by AFTE, the leading international organization for firearm and toolmark examiners. Thus, the court finds the first of the three threshold requirements, that the witness is qualified, is met.

2. Is the witness's testimony relevant?

Mr. Xiong's testimony is relevant. "Relevant evidence" means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the case more probable or less probable than it would be without the evidence. Wis. Stats. § 904.01.

Elaborating on the second inquiry that the evidence must be helpful and assist the trier of fact, Professor Blinka wrote in Wisconsin Practice Series, Wisconsin Evidence, Fourth Edition, ¶702.4031, pp. 672-673:

> The 2011 Act added several important elements to the foundation for expert opinion testimony while building on *the rule's core: the testimony must be relevant,* the witness must be shown to have specialized knowledge ("qualified"), and *the testimony must be helpful to the trier of fact in determining a fact in issue* or in understanding the evidence.
>
> *These three fundamental elements-relevancy, qualifications, and helpfulness—comprise the essence of the relevancy rule.* Later cases had fine-tuned the "assistance" element by instilling a "limited gatekeeping" role on the trial judge. Expert testimony had to be "reliable enough to be probative." Those cases still serve as a useful guide for evaluating the admissibility of expert testimony…. (Emphasis added).

Wisconsin appellate courts follow these principles as well. In *State v. Giese,* 2014 WI App 92, ¶18, the court held:

> The court's gatekeeper function under the *Daubert* standard is to ensure that the expert's opinion is based on a reliable foundation and is *relevant to the material issues.* (Citation omitted). (Emphasis added).

The firearms and toolmark evidence being proffered by the State is relevant; it is probative of and related to the issue of the identity of the person who caused the death of JLM. The State contends that the handgun that Mr. Coleman possessed in the waistband of his pants at the time of his arrest fired the fatal shots that killed JLM. The 9mm handgun recovered from Mr. Coleman was tested by Mr. Xiong who determined that the bullet fragments from the victim's body recovered during the autopsy and the other bullet fragments fired into the victim's vehicle were fired through the barrel of the 9mm gun recovered from Mr. Coleman. Thus, this testimony is relevant and would help the trier of fact determine who committed the charged offense.

3. Is the proffered expert testimony reliable enough to be probative?

In assessing reliability, the court has to ensure that the expert "employs in the courtroom the same level of intellectual rigor that characterized the practice of an expert in the relevant field." *Vanderventer, et al. v. Hyundai Motor America, et al.,* 2022 WI App 56, ¶59, citing *Kumho Tire Co., Ltd. v. Carmichael,* 526 U.S. 137, 152 (1999). Some of the factors that our supreme court has recognized in deciding if expert testimony is reliable in the scientific contest include: whether the scientific theory or technique on which the expert's conclusions were based was testable (and tested); whether it was subjected to peer review and publication; and whether it was generally accepted in the scientific community. *State v. Hogan,* 2021 WI App 24, ¶21, citing *Daubert, supra,* 509 U.S. at 593-94. Further, it is suggested that the court consider whether there is a high "known or potential rate of error" and whether there are "standards controlling the technique's operation." *Id.* This list is not exhaustive of factors that a court can use to determine whether an expert's work is reliable. The inquiry is "flexible" and no single factor is determinative. *Id.* at 594.

In Mr. Coleman's case, the court finds that the State has proven by the preponderance of the evidence that Mr. Xiong's testimony is based on reliable methodologies. Toolmarks and Firearms methodology has had some recent challenges to its reliability; however, this Court holds that the State has demonstrated that the practice of toolmark identification adopted by the AFTE, the leading international organization for firearms and toolmarks examiners and utilized by Mr. Xiong in this case, has widely been accepted in both State and Federal courts. Further, AFTE Theory is testable and has been

tested. Studies have been conducted to test the validity of AFTE theory. The literature submitted in this case, *See,* Exh. 2, along with many other studies, shows significant research has been done concerning the uniqueness and reproducibility of firearms toolmarks. *Daubert* directs that courts should consider the known or potential rate of error when determining whether to admit scientific evidence. 509 U.S. at 594, 113 S.Ct. 2786. In this case, the Black Box study documented in Exh. 2 assessed the performance of forensic firearms examiners across the United States and found the over-all false positive error rate was 0.656% for bullets and 0.933% for cartridge cases. The overall false-negative error rate was 2.87% for bullets and 1.87% for cartridge cases. The study found that the majority of errors were committed by a limited number of examiners. There was no testimony offered in this case to suggest that this examiner, Mr. Xiong, has made any false positive identifications in has practice. Thus, the evidence presented on error rates leads this Court to conclude that the *Daubert* factor weighs in favor of admitting the challenged expert testimony.

Further, Courts in Wisconsin have accepted Mr. Xiong's testimony over 100 times. In each case, Mr. Xiong has prepared a report. Mr. Xiong has also documented in detail, thorough note-taking and photographs, the basis for his findings. (Exh. 3). Before he completes a report related to his findings, Mr. Xiong's work is subjected to peer review at the Wisconsin Crime Lab as in other laboratories across the country. These factors indicate at least some significant level of testability and reproducibility of results.

Because firearms and toolmarks identification enjoys "general acceptance" within the scientific community; the expert's theories are testable and have been tested; and Mr.

Xiong's work is peer reviewed, this court finds that testimony and evidence, as developed herein, concerning the gun, the bullet fragments from the victim's car and the other bullet fragments recovered from the victim's body may be offered by the State.

4. Opinions of Expert 'Reasonable Degree of Certainty in the Ballistics Field'

Finally, there is a question as to what degree of certainty Mr. Xiong may offer the jury concerning his opinions and conclusions in this case. Increasingly, courts have recognized this issue and have limited the manner in which firearms examiners may testify, requiring them to tell jurors they *cannot* make ballistics findings with absolute certainty. In *United States v. Glynn,* 578 F. Supp.2d 567, 574-575 (SDNY 2008), the court ordered that ballistics opinions could be stated in terms of 'more likely than not,' but nothing more. Similarly, in *United States v. Diaz,* 2007 WL 485967 (N.D.Cal. Feb. 12, 2007), the court found that the record did not support the conclusions that identifications could be made to the exclusion of all other firearms in the world. Thus, "the examiners who testify in this case may only testify that a match has been made to a 'reasonable degree of certainty in the ballistics field.'" *Id.*

In the present case, Mr. Xiong was asked, "[T]o what degree of certainty do you make your conclusions?" Mr. Xiong replied: "A professional degree of certainty that's practiced in my field." (Tr. 36). He further elaborated: "…that basically means that my expectation would be another qualified examiner performing the same type of examination will come to the same conclusion as me." (Tr. 36). Mr. Xiong conceded that he does not view this standard as an "absolute." (Tr. 50). He further indicated that he cannot put a percentage on his conclusions. (Tr. 50).

Because there is no such thing as a perfect match in the world of ballistics, *United States v. Taylor,* 663 F.Supp.2d 1170, 1177 (D.N.M. 2009), this court, while it will not limit the particular language that Mr. Xiong may use to detail and describe his findings, this Court holds that Mr. Xiong cannot say that they came from a specific weapon "to the exclusion of every other firearm in the world." *United States v. Green,* 405 F. Supp.2d 104, 109 (D.Mass. 2005). He can offer his opinion "to a reasonable degree of certainty within the field of ballistics."

CONCLUSION

For the above stated reasons, the defendant's motion to exclude the testimony of the firearms and toolmarks examiner is DENIED. The testimony is admissible within the restrictions stated herein above.