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Panel JUSTICE HUTCHINSON delivered the judgment of the court, with opinion.
Justices McLaren and Hudson concurred in the judgment and opinion.

OPINION

¶ 1 Following a jury trial, defendant, Chrystal L. Floyd, was convicted of aggravated driving under the influence (DUI) pursuant to section 11-501(a)(2) of the Illinois Vehicle Code (625 ILCS 5/11-501(a)(2) (West 2010)) and resisting arrest (720 ILCS 5/31-1(a) (West 2010)). During the trial, the State introduced expert witness testimony on a "retrograde extrapolation" calculation in an attempt to demonstrate that defendant's blood alcohol concentration (BAC) was at or above 0.08 at the time of her arrest. Retrograde extrapolation is premised on the theory that a person's BAC, derived from a breath or blood test at a particular time, can be extrapolated back to an allegedly higher BAC that existed at the time of a prior incident. The State also introduced evidence of other crimes that occurred before defendant allegedly committed the offense of aggravated DUI.

¶ 2 On appeal, defendant contends that the trial court erred by (1) allowing the expert witness's testimony on retrograde extrapolation when the expert did not have information necessary to conduct a reliable calculation; (2) allowing the State to admit other-crimes evidence that was highly prejudicial, but minimally relevant; (3) allowing testimony, which lacked foundation, that defendant failed a horizontal gaze nystagmus (HGN) test; and (4) failing to instruct the jury that it could not draw a negative inference from the State's video recording of defendant's field sobriety tests, which the State failed to produce. For the following reasons, we reverse defendant's DUI conviction and remand for a new trial.

¶ 3 The record reflects that, on June 16, 2011, defendant was in the parking lot at the Dolphin Cove Family Aquatic Center in Carpentersville. At approximately 7:30 p.m., defendant made a 911 call via the OnStar system in her vehicle. Defendant told the 911 operator that she had a "violent boyfriend" who wanted to hit and rob her. Defendant can be heard on the recording telling a man that she had been "drinking since I've been here." Defendant then told the operator that a man who made her perform oral sex on him was sitting in her vehicle and that "he needs to get the [expletive] out of my car." Officer David Rowley was dispatched to the Dolphin Cove parking lot. Upon arriving, he observed defendant and a man arguing outside of

a vehicle. Because Rowley believed that defendant was intoxicated, he told her not to drive. At that point, defendant and the man went separate ways, and Rowley left the scene.

¶ 4 Thereafter, Mike Eschenbach, the manager of Dolphin Cove, noticed that defendant was back inside her vehicle. Defendant was alone, sitting in the passenger seat, and listening to loud music. Eschenbach observed a man approach defendant's vehicle, and the man then "tossed something at the vehicle, gave it a light shake, and walked away." Eschenbach left the Dolphin Cove parking lot at approximately 8:30 p.m.

¶ 5 At around 8:50 p.m., Don Azerela, the building supervisor, witnessed a man approach defendant's vehicle. About a minute later, Azerela heard the man pounding on defendant's vehicle and saw the vehicle shake. Azerela moved closer to the parking lot and was joined by Scott McManus. As the man was shaking the vehicle, Azerela and McManus witnessed the vehicle's brake lights come on and heard the engine start. A chase ensued and McManus called 911. Azerela estimated that the vehicle reached a speed of 25 miles per hour during the chase. When the man ran toward a gas station, defendant's vehicle turned back and returned to its original parking space. The police arrived about a minute later.

¶ 6 Officer Robert Drews arrived at the scene and observed skid marks leading to the parked vehicle. The key was in the ignition, but the engine was not running, and defendant appeared to be sleeping in the driver's seat. Drews knocked on the window, and when defendant opened the vehicle's door, Drews could smell a "moderate" odor of alcohol. According to Drews, defendant's speech was "good," and her eyes were not bloodshot or glassy. Defendant told Drews that she had not been driving, because she was too drunk to drive. Drews advised defendant that she needed to perform sobriety tests, but defendant refused and began to walk away. Drews attempted to arrest defendant, but she resisted; Drews and his partner effected the arrest and placed her into the squad vehicle. A tow truck subsequently towed defendant's vehicle.

¶ 7 At the police station, defendant agreed to perform field sobriety tests. Defendant passed a one-legged-stand test but failed a walk-and-turn test. Drews also tested defendant's eyes for the presence of HGN. The test looks for three clues per eye: (1) the lack of a smooth pursuit as a stimulus is moved from directly ahead of the subject to the subject's periphery; (2) the presence of a "distinct nystagmus at maximum deviation" when the stimulus is held as far out to the periphery as the eye can follow; and (3) the onset of nystagmus before the eye has rotated 45 degrees as it follows the stimulus toward the periphery. The maximum number of clues that can be detected is six, with three clues for each eye. Drews determined that four clues were present and concluded that defendant was under the influence of alcohol.

¶ 8 All three tests were performed in the police station's booking area. The booking area contained video recording devices in the booking room, the sally port, and the hallway leading to the booking room.

¶ 9 Law enforcement officers administered a breath test to defendant at 10:30 p.m., which registered her BAC at 0.069. At trial, the State produced John Wetstein, a forensic toxicologist, as an expert witness. Wetstein testified that, after conducting a retrograde extrapolation calculation, he determined that defendant's BAC at 9:10 p.m. was between 0.082 and 0.095.

¶ 10 Wetstein explained that conducting a retrograde extrapolation calculation is possible because a person eliminates alcohol at a fixed rate of between 0.01 and 0.02 grams per deciliter of blood per hour. Wetstein explained that two conditions must be met for the calculation to be

valid. First, the person metabolizes alcohol at the normal rate. Second, the person is in the postabsorption phase—that is, the person is no longer absorbing alcohol and is in the elimination phase—when the breath test is administered. Wetstein explained that, because the body absorbs alcohol primarily through the small intestine, a person’s absorption rate will vary depending on many factors. These factors include the type of food that the person has eaten, the type of alcohol consumed, and the length of time during which the drinking occurred. Wetstein testified that after a person’s last drink a person can take from 15 minutes to 90 minutes or more to enter the postabsorption phase.

¶ 11 On cross-examination, Wetstein acknowledged that he did not know what defendant had eaten that night, how long she had been drinking, or what type of alcohol she consumed. Wetstein admitted that he did not attempt to determine when defendant had entered the elimination phase but, rather, assumed that she was in the elimination phase at 9:10 p.m. Wetstein explained that, if a person had not consumed any alcohol since 7:30 p.m., he would be “quite confident” that the person was in the elimination phase by 9:10 p.m.

¶ 12 The jury found defendant guilty of aggravated DUI and resisting arrest. Based on two prior burglary convictions, the trial court sentenced defendant as a Class X offender to the minimum of six years’ imprisonment. Defendant appeals her DUI conviction but not her resisting arrest conviction.

¶ 13 Defendant’s first contention on appeal is that the trial court erred in admitting Wetstein’s testimony regarding Wetstein’s retrograde extrapolation calculation. Defendant argues that, because Wetstein did not have information necessary to perform a retrograde extrapolation calculation with any degree of certainty, the prejudicial effect of his testimony outweighed its probative value. Specifically, defendant argues that Wetstein did the “simple part” of the retrograde extrapolation calculation by adding between 0.01 and 0.02 per hour to the result of defendant’s breath test, but he “assumed away” that defendant was in the postabsorption, elimination phase. Thus, the gravamen of defendant’s argument is that, because a subject being in the elimination phase is necessary for a retrograde extrapolation calculation to be accurate and valid, Wetstein’s testimony had little probative value because he merely assumed that defendant was in that phase. Further, Wetstein’s testimony was prejudicial because, as a “court-pronounced expert regarding retrograde extrapolation,” the jury would “listen[] to him anyway.”

¶ 14 The admissibility of evidence rests in the trial court’s sound discretion, and its ruling will not be reversed absent an abuse of discretion. *People v. Montes*, 2013 IL App (2d) 111132, ¶ 61. Under Illinois Rules of Evidence 401 and 402 (eff. Jan. 1, 2011), relevant evidence, *i.e.*, evidence that has a tendency to prove or disprove a fact of consequence, is admissible at trial. Nonetheless, relevant evidence may be excluded if its prejudicial effect substantially outweighs its probative value. Ill. R. Evid. 403 (eff. Jan. 1, 2011); *People v. Hoerer*, 375 Ill. App. 3d 148, 157 (2007). Thus, in deciding whether to admit evidence, the trial court must weigh the evidence’s prejudicial effect against its probative value. *Hoerer*, 375 Ill. App. 3d at 157 (citing *People v. Walker*, 211 Ill. 2d 317, 338 (2004)).

¶ 15 In support of her contention, defendant cites *State v. Eighth Judicial District Court*, 267 P.3d 777 (Nev. 2011) (*Armstrong*). In *Armstrong*, the Nevada Supreme Court considered whether the trial court erred in excluding a retrograde extrapolation calculation to estimate the defendant’s BAC. *Id.* at 778-79. The defendant was involved in a vehicular accident at 1:30 a.m. *Id.* at 779. A single blood sample was taken at 3:51 a.m. and reflected the defendant’s

BAC as 0.18. *Id.* After an evidentiary hearing, the trial court granted the defendant’s motion to exclude the retrograde extrapolation calculation. *Id.*

¶ 16 In determining whether the trial court erred in excluding the evidence, the Nevada Supreme Court noted that a retrograde extrapolation calculation required information on the rates at which alcohol was absorbed and excreted. *Id.* at 780. It further noted that rates can vary depending on a number of factors, including the elapsed time between a person’s last drink and the blood test; the amount and type of alcohol consumed; the time period during which the alcohol was consumed; and personal characteristics such as age, weight, alcohol tolerance, and food intake. *Id.*

¶ 17 After determining that retrograde extrapolation evidence was relevant, the Nevada Supreme Court turned to whether the evidence unfairly prejudiced the defendant. *Id.* at 781. The reviewing court noted that the trial court’s concern centered on the unknown variables, which suggested:

“[T]he evidence [was] of little probative value given those variables and the single [blood] sample, but the evidence [was] likely to move the jury to declare guilt based solely on a reaction to the [BAC] and the very real devastation caused by drunk driving rather than proof that the defendant was driving under the influence or with a prohibited blood alcohol level.” *Id.* at 781-82.

After discussing case law from another jurisdiction, the court in *Armstrong* opined that “achieving a reliable extrapolation calculation requires consideration of a variety of factors.” *Id.* at 783. Those factors include a subject’s (1) gender; (2) weight; (3) age; (4) height; and (5) mental state; (6) the type and amount of food in the stomach; (7) the type and amount of alcohol consumed; (8) the time the last alcoholic drink was consumed; (9) the subject’s drinking pattern at the relevant time; (10) the elapsed time between the first drink and the last drink consumed; (11) the elapsed time between the last drink and the blood draws; (12) the number of samples taken; (13) the elapsed time between the offense and the blood draws; (14) the average alcohol absorption rate; and (15) the average elimination rate. *Id.* Turning to the case before it, the Nevada Supreme Court noted that experts calculated the defendant’s BAC on factors attributed to the “average person” and “various hypothetical situations.” *Id.* The reviewing court noted that some of the above factors were known, such as that the defendant consumed two beers between 5 p.m. and 10 p.m., that he weighed 212 pounds, and the elapsed time between the accident and the blood draw. *Id.* However, there was no evidence concerning the defendant’s age or height; the type and amount of food in his stomach; and his emotional state after the accident. *Id.* In addition, the defendant gave one blood sample. The reviewing court noted that, although one sample could result in a reliable retrograde extrapolation calculation if an expert has knowledge of many other personal characteristics and behaviors of the defendant, a single blood draw, without more information, made it “difficult to determine whether [the defendant] was absorbing or eliminating alcohol at the time of the blood draw.” *Id.* (citing *Mata v. State*, 41 S.W.3d 902, 916 (Tex. Crim. App. 2001)). The court in *Armstrong* concluded:

“The admission of retrograde extrapolation evidence when a single blood draw was taken more than two hours after the accident is insufficiently tethered to individual factors necessary to achieve a reliable calculation [and] potentially invites the jury to determine [the defendant’s] guilt based upon emotion or an improper ground—that the

defendant had a high blood alcohol level several hours later—rather than a meaningful evaluation of the evidence.” *Id.*

Thus, the reviewing court determined that the trial court did not abuse its discretion in excluding the retrograde extrapolation evidence. *Id.*

¶ 18 The State, conversely, cites *Petraski v. Theodos*, 382 Ill. App. 3d 22 (2008). In *Petraski*, Margaret Petraski was seriously injured in an accident with a vehicle driven by an officer in the Cook County sheriff’s department; a jury awarded her in excess of \$26 million. *Id.* at 23-24. At trial, the defendants sought to introduce expert witness testimony that Petraski’s BAC would have been above the legal limit at the time of the accident. *Id.* at 25. The expert would have testified that, based on a blood test taken 90 minutes after the accident, Petraski had a blood serum reading of 0.116 grams per deciliter. *Id.* After conducting a conversion, the expert would testify that Petraski’s BAC at the time of the accident was approximately 0.095 or 0.096. *Id.* at 25-26. The expert would testify that he assumed that Petraski was in the elimination phase during the entire period after the accident, and with that assumption he could perform a retrograde extrapolation calculation. *Id.* at 26. The trial court excluded the evidence as being too speculative. *Id.*

¶ 19 On appeal, the reviewing court reversed the trial court’s exclusion of the retrograde extrapolation calculation. The reviewing court concluded:

“We do not believe [the expert’s] assumption that Petraski’s [BAC] was in the elimination phase when her blood was drawn [was] unwarranted. The blood draw took place at least [an hour and a half] after the collision, most probably longer than that. Nowhere in [the expert’s] proposed testimony was he asked to offer an estimate of Petraski’s [BAC] level if she were in the absorption phase at the time of the draw. Nor did the plaintiff offer any such evidence.” *Id.* at 31-32.

The reviewing court concluded that any questions regarding the facts upon which the expert based his opinion would go to the weight of his opinion, which could be challenged on cross-examination. *Id.* at 32. The reviewing court further concluded that the expert’s testimony, which would have created a presumption of intoxication, would have been “extremely probative of whether [Petraski] was partially at fault for the accident,” particularly when the jury had already concluded that Petraski was 25% negligent. *Id.* With respect to unfair prejudice, the reviewing court found that there was an “insubstantial risk” that the jury would have misused the evidence. *Id.* at 33. Thus, the reviewing court reversed and remanded for a new trial. *Id.*

¶ 20 We are persuaded by the Nevada Supreme Court’s thoughtful and detailed reasoning in *Armstrong*. A retrograde extrapolation calculation based on a single breath test, and when many of the factors necessary to determine whether the defendant was in the elimination phase are unknown, is insufficient to provide a reliable calculation and invites the jury to determine guilt on an improper basis. Based on the specific circumstances presented in this case, we believe that the prejudicial effect of the retrograde extrapolation calculation substantially outweighed its probative value and that the trial court abused its discretion in admitting it.

¶ 21 Before weighing the probative value of the retrograde extrapolation calculation against its prejudicial effect, we first address the State’s argument that, because Illinois follows the test enunciated in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), a trial court does not have the discretion to exclude scientific evidence due to its prejudicial effect resulting from gaps in

the scientific evidence. Under the *Frye* standard, scientific evidence is admissible only if the methodology or scientific principle is sufficiently established to have gained general acceptance in a particular field. *In re Commitment of Simons*, 213 Ill. 2d 523, 529-30 (2004) (citing *Frye*, 293 F. at 1014). “General acceptance” does not mean universal acceptance; and the methodology in question does not need to be accepted by unanimity, consensus, or a majority of experts. *Id.* at 530. Rather, the underlying method used to generate an expert’s opinion must be reasonably relied on by other experts in the relevant field. *Id.*

¶ 22 While we recognize that Illinois courts follow the *Frye* standard for the admission of scientific evidence (see *People v. Caballes*, 221 Ill. 2d 282, 334 n.1 (2006)), the State’s assertion that the *Frye* standard precludes a trial court from weighing the probative value of scientific evidence against its prejudicial effect is misplaced. Our supreme court has held that, even if a particular type of scientific evidence has been generally accepted in the scientific community, its admissibility “in an individual case will depend on the State’s ability to lay a proper foundation and to demonstrate the qualifications of its witness, *subject to the balancing of probative value with the risk of unfair prejudice.*” (Emphasis added.) *People v. McKown*, 236 Ill. 2d 278, 314 (2010). We further note that, while other Illinois courts have held that retrograde extrapolation evidence is admissible so long as it is presented by a qualified expert (*People v. Ikerman*, 2012 IL App (5th) 110299, ¶ 38), defendant did not raise the issue of whether retrograde extrapolation evidence satisfies *Frye*. Therefore, we emphasize that our opinion today does not speak to that question.

¶ 23 With respect to the retrograde extrapolation’s probative value, we recognize that Wetstein’s calculation would be relevant to whether defendant’s BAC was at or above 0.08. Nonetheless, the inherent unreliability of Wetstein’s calculation is reflected in his own testimony. Specifically, Wetstein testified that determining whether a person was in the elimination phase was a “complicated question.” Wetstein testified that different circumstances could affect whether someone was in the elimination phase, such as when the person started and stopped drinking; a person’s eating and drinking habits; how much and what food had been consumed; and the type of alcohol consumed. Wetstein acknowledged that he did not recall when defendant started and stopped drinking. He testified that, if other relevant information on whether defendant was in the elimination phase were available, he would have factored it into his calculation. However, Wetstein’s testimony is devoid of any indication that he considered any other information to determine whether defendant was in the elimination phase. Instead, Wetstein admitted that his “big assumption” was that defendant was eliminating alcohol when law enforcement officers administered the breath test, and he admitted that if his assumption were wrong “the extrapolation [would not] be valid.” Thus, because Wetstein’s calculation was premised on the assumption that defendant was in the elimination phase, without consideration of other relevant factors and without additional breath tests, we find the probative value of his testimony to be significantly diminished. See *Armstrong*, 267 P.3d at 783.

¶ 24 Conversely, the risk of unfair prejudice from Wetstein’s calculation was substantial. Illinois courts have defined “unfair prejudice” as an “ ‘ “undue tendency to suggest decision on an improper basis, commonly an emotional one, such as sympathy, hatred, contempt, or horror.” ’ ” *People v. Barnes*, 2013 IL App (1st) 112873, ¶ 44 (quoting *People v. Eyles*, 133 Ill. 2d 173, 218 (1989), quoting Michael H. Graham, Cleary and Graham’s Handbook of Illinois Evidence § 403.1 (4th ed. 1984)). In this case, we find the reasoning in *Armstrong* applicable.

The introduction of Wetstein’s retrograde extrapolation calculation, when many necessary factors were unknown and when only one breath test was administered, invited the jury to convict her due to a reaction to a supposedly high BAC rather than proof beyond a reasonable doubt that defendant was driving under the influence. See *Armstrong*, 267 P.3d at 781.

¶ 25 We emphasize that our holding is limited to the specific circumstances of this case, and we recognize that retrograde extrapolation “has its place in proving that a defendant was driving under the influence.” *Id.* at 783-84. In doing so, we further emphasize that we are not creating a blueprint or a bright-line rule for the admissibility of retrograde extrapolation evidence. As the court in *Armstrong* noted, not every factor must be known to construct a reliable extrapolation; rather, the various factors must be balanced. *Id.* at 783. Whether the State produces a reliable extrapolation will depend on the specific circumstances of each case.

¶ 26 We are also cognizant of the State’s concern that many of the factors necessary to determine if a person was in the elimination phase will be difficult to obtain if that person invokes his or her privilege against self-incrimination. Nonetheless, we believe that the State could still reliably conclude that a defendant was in the elimination phase by conducting additional breath or blood tests. As the court in *Mata* opined:

“If the State had more than one test, each test a reasonable length of time apart, and the first test [was] conducted within a reasonable time from the time of the offense, an expert could potentially create a reliable estimate of the defendant’s BAC with limited knowledge of personal characteristics and behaviors.” *Mata*, 46 S.W.3d at 916.

¶ 27 In sum, because the State’s expert witness acknowledged that he was unaware of many of the factors necessary to determine whether defendant was in the elimination phase, and because the police conducted only one BAC test, we find the extrapolation calculation to be inherently unreliable. In addition, because the extrapolation evidence invited the jury to convict defendant on the basis of a supposedly high BAC, the potential for prejudice from admitting that evidence was high. Because the prejudicial effect of the extrapolation substantially outweighed the probative value, the trial court abused its discretion in admitting the evidence. See generally *McKown*, 236 Ill. 2d at 314 (noting that the admissibility of scientific evidence is subject to the balancing of probative value and the risk of unfair prejudice). Further, given the conflicting nature of the other testimony at trial, including that defendant passed some field sobriety tests while failing others, the trial court’s admission of the extrapolation evidence was not harmless. See *id.* at 311 (rejecting a harmless error argument).

¶ 28 Nonetheless, although we are reversing, we find that, after viewing the evidence in the light most favorable to the State, there was sufficient evidence from which the jury could have found defendant guilty of aggravated DUI beyond a reasonable doubt. See *People v. Lopez*, 229 Ill. 2d 322, 366-67 (2008) (noting that the relevant inquiry into whether double jeopardy prohibits another trial is whether, after viewing the evidence in the light most favorable to the State, including suppressed evidence, any rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt). The evidence in this case included the improperly admitted extrapolation evidence, the field sobriety tests, and Drew’s opinion testimony.

¶ 29 Finally, while we note that defendant has raised other issues on appeal, we decline to review them. “As a general rule, a court of review will not decide moot or abstract questions or render advisory opinions.” *People v. Campa*, 217 Ill. 2d 243, 269 (2005).

¶ 30 For the foregoing reasons, we reverse the judgment of the circuit court of Kane County and remand for a new trial.

¶ 31 Reversed and remanded.