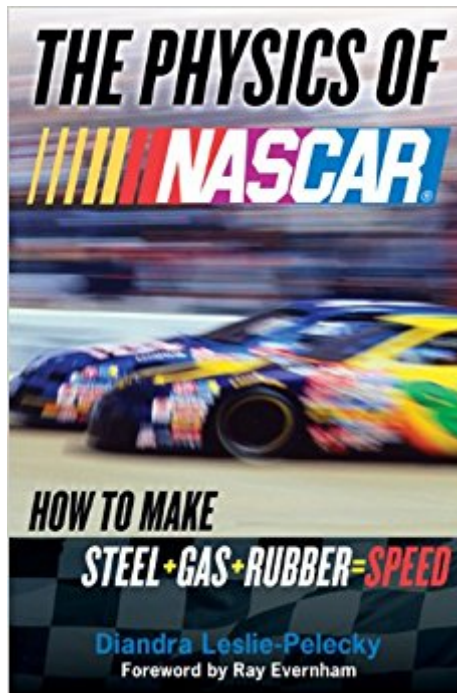




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# The Physics Of NASCAR: How To Make Steel + Gas + Rubber = Speed



## Synopsis

Every NASCAR fan at one time or another asks the same question: Why isn't my favorite driver winning? This is your chance to discover how much more there is to NASCAR than "Go fast, turn left and don't crash." If you've ever wondered why racecars don't have mufflers, how "bump drafting" works, or what in the world "let's go up a pound on the right rear and add half a round of wedge" means, *The Physics of NASCAR* is for you. In this fast-paced investigation into the adrenaline-pumping world of NASCAR, a physicist with a passion uncovers what happens when the rubber hits the road and 800-horsepower vehicles compete at 190 miles per hour only inches from one another. Diandra Leslie-Pelecky reveals how and why drivers trust the engineering and science their teams literally build around them not only to get them across the finish line in first place, but also to keep them alive. Professor Leslie-Pelecky is a physicist in love with the sport's beauty and power and is uniquely qualified to explain exactly how physics translates into winning races. Based on the author's extensive access to race shops, pit crews, crew chiefs and mechanics, this book traces the life cycle of a race car from behind the scenes at top race shops to the track. *The Physics of NASCAR* takes readers right into the ultra competitive world of NASCAR, from the champion driver's hot seat behind the detachable steering wheel to the New Zealander nicknamed Kiwi in charge of shocks for the No. 19 car. Diandra Leslie-Pelecky tells her story in terms anyone who drives a car--and maybe occasionally looks under the hood--can understand. How do drivers walk away from serious crashes? How can two cars travel faster together than either car can on its own? How do you dress for a 1800° F gasoline fire? In simple yet detailed, high-octane prose, this is the ultimate thrill ride for armchair speed demons, auto science buffs, and NASCAR fans at every level of interest. Readers, start your engines.

## Book Information

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## Customer Reviews

Having caught, by chance, the broadcast of a multi-car NASCAR crash on television, Nebraska University physics professor Leslie-Pelecky found herself compelled to understand why it happened. Soon, a growing list of scientific questions ("How do you build an engine...that can run at 9,000 rpm for three hours without blowing up?") steer her to meetings with engineers, ground crews and drivers who work together "at the limits of what we understand about aerodynamics, structural engineering and even human physiology." The first part of the book deals with materials, and looks at how combustion, power and aerodynamics work together to maximize speed. But it's the driver and his crew who win the race, and Leslie-Pelecky gets plenty of time with the men behind the machines, joining Ray Evernham's crew to watch him race, and taking a turn behind the wheel herself. Along the way, the nanotech specialist becomes an unlikely racing fan; this fun physics primer should give any NASCAR aficionado a similar appreciation for science. Copyright © Reed Business Information, a division of Reed Elsevier Inc. All rights reserved.

NASCAR may be the number-one spectator sport in the world, but that doesn't mean we know a whole lot about how it works. How, exactly, do you design and manufacture a car that will move at those tremendous speeds but will handle with precision and, above all, will not kill its driver? What makes a NASCAR car different from the vehicles you see on the regular roads? The author, a physicist and devoted NASCAR fan, explains in clear, simple terms what goes into making a NASCAR vehicle, from design to development to construction to test-driving. Along the way, she introduces us to some of the sport's key players and teaches us (painlessly) more about the physics of speed racing than we ever thought we needed to know. NASCAR fans will flock to this book. --David Pitt

Bought this for my 13 year old nephew--He said it was pretty cool and that he "actually loved it!" It was great to get him interested in science and math. For that reason I love it too!

This book would translate nicely into a Discovery Channel series. You know, high-interest, science-to-the-masses kind of stuff. Give it a year; it's going to happen! I am a fan of "The Physics

Of.." books, and some disappoint: they can be so thorough [read hyper-mathematic] as to resemble homework; or they can be so simplified they read like a children's book. Most land somewhere in between. Take, for instance, Adair's book on the Physics of Baseball: it's fantastic, but I wouldn't recommend it to just anyone. It contains more mathematics than the average Joe (or Jane) is equipped to handle. But this book, *The Physics of NASCAR*, follows the Goldilocks Principle: it's just right. Not too pithy, not too watered down. High interest, easy access, entertaining insights. If you like popular science, you'll enjoy this book. Personally, I love the way the author pulls in characters from the NASCAR family. It gives the book personality! She does a great job with the science as well. There were a couple of bobbles here and there, but she covered a LOT of ground. This book is really a text in applied physics (and biology and chemistry), sans the quantitative rigor. I would love to adapt it to my high school curriculum--it would certainly grab my students' attention. If you teach physics at the high school or college level, this book is the perfect supplement to a course on physics for non-majors, or simply a means to raise the interest/relevance level for the concepts you teach. Buy it. If it doesn't work out, then re-sell it on 's Marketplace. Now there's a win-win situation! Hope that helps...

In her book, "*The Physics of NASCAR*", author Diandra Leslie-Pelecky takes the reader inside the sometimes ignored world of engineers and gearheads to get a glimpse of the science that is used to make a car travel at speed of nearly 200 mph while still being consistently drivable. Pelecky follows the story into the garages and mobile offices (haulers) of several NASCAR teams to get an up-close understanding of the issues that car fabricators, engine builders, crews and drivers face in their quest to capture the checkered flag at the end of a long week of work. The book is very much written at an introductory level with no prior knowledge of physics, chemistry or auto-racing assumed. With chapters on nearly everything of any importance related to going fast and doing it safely, Pelecky does an excellent job of balancing the technical side of the topic with stories and descriptions of the real human beings that make it all happen. Nowhere will the reader feel like they have gotten lost in an avalanche of technical jargon and yet most readers will feel as if they have a much deeper understanding of what it takes to run fast. The only contention I might have is that I would have liked to have seen a bit more information on the specific effects of aerodynamic changes and a discussion of the engineering of tires to provide more grip. These however are minor points that are likely more based on personal preference than any real defect in the book. I would recommend this book to anyone who is interested in NASCAR or auto racing in general and who finds the network spots on the car leaving them wishing for more. You'll find most of that more here in a way that is

easily accessible to nearly anyone.

I learned a TON from this little book. Reading it has increased my science literacy significantly (that will let you know how weak I am in science... I was a music major in college and studied the social sciences in graduate school. Hard science background? Basically none) This is a fun title, and a great way to get people solid science content "on the sly." However, as a newer NASCAR fan, I found the book absolutely essential. The depths of this wonderful American sport are difficult to describe to the uninitiated. Many of my friends think the sport is just corporate sponsored cars turning to the left. I love working on my own car, in fact I love all things mechanical, and I love things that go fast; I for one find NASCAR totally enthralling. This book has only deepened my obsession. As an educator I found this book potentially quite powerful. I recently read *Shop Class as Soulcraft: An Inquiry Into the Value of Work* and I find it connects with this book in interesting ways. I think the author is interested in increasing science literacy by connecting the concepts to something that students will find engaging and interesting. I think one of the reasons so few students are rapt with the hard sciences these days (besides the fact that they are hard in more ways than one) is that we have done away with serious manual education in the classroom. Students used to learn about combustion and tolerances of certain materials connected with the manual, interesting, and observable phenomena of a car in auto-shop. Shop classes are on the chopping block everywhere, and science classes devoid of real world applications students find interesting become even more abstract and difficult to follow. This book, like *Shop Class as Soulcraft*, may be part of the remedy for this terrible situation. Sometimes it is evident that the author is interested in giving science lessons on the sly, as opposed to just dealing with the science of NASCAR. For instance, in the section on paints, she goes into a lengthy discussion on light waves work and how our eyes perceive color. This would be outside scope if the purpose of the book were to simply address the science of NASCAR. If the purpose of the book is to increase the science literacy of NASCAR fans (especially the kids) then it is not outside the scope at all, and is very valuable. As a teacher (NOT a science teacher) I found this book EXCELLENT. I think it would do school districts a service if this book were placed on summer reading lists for the science department. This is a book students who are NASCAR fans will be drawn to. And it will teach them a LOT if they stick to it. From the perspective of understanding automobiles, the economics of racing, how the race car is built, and other inside elements of NASCAR this book is incomparable. It will give one a decent overview of the sport and will really increase interest in the races by making the would-be fan much more aware of everything that goes into fielding a winning NASCAR team. This is a great book. Highly

recommended for NASCAR fans of all ages... ESPECIALLY students at the High School (or even bright Junior High students) to help them understand why studying science is so important. Diandra Leslie-Pelecky is a physicist and that is noble. But she transcends the rarified air of the academy to also be a good teacher, and that is even more noble in my book.

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