

THE FUTURE OF **TIRE**  
**TECHNOLOGY**



**CAMBERTIRE™**  
**A VISION OF THE FUTURE**

Presented by John Scott - Oct. 29, 2013

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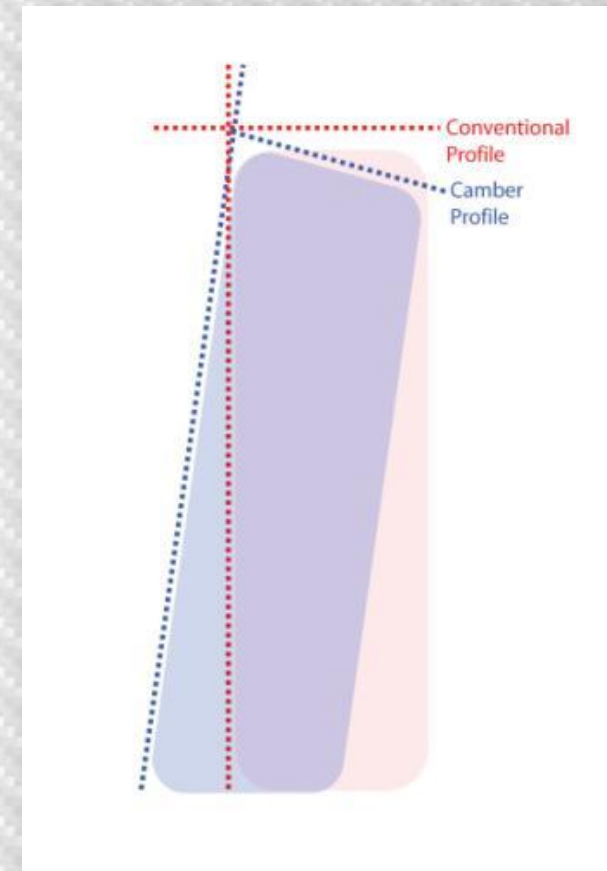
**All truth** passes through three stages:

- First, it is **ridiculed**
- Second, it is **violently opposed**
- Third, it is **accepted as being self-evident**

*~ Arthur Schopenhauer - 1788 - 1860*

# Camber Technology

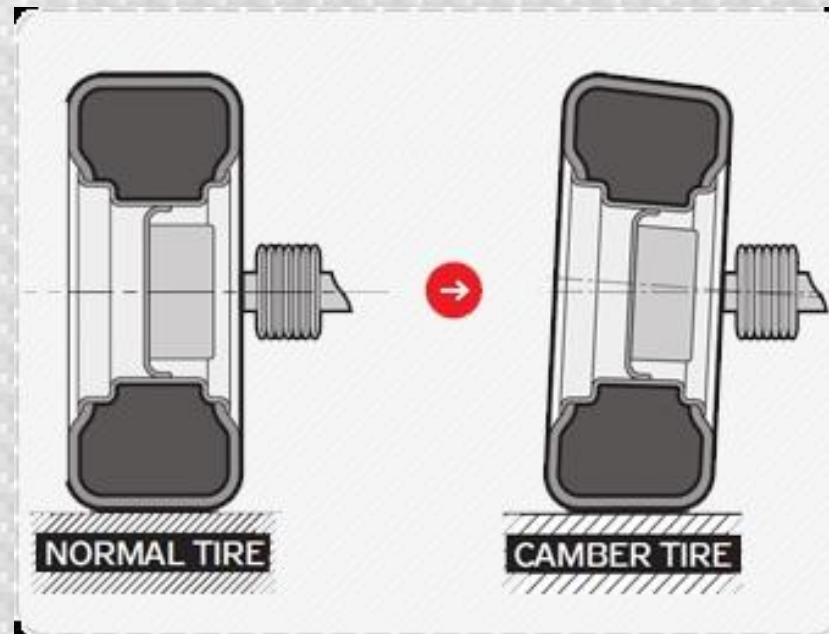
The Cambertire™ features an asymmetric design with the outside of the tire having a longer sidewall than the inside sidewall.





# Camber Technology

This enables the user to add negative camber in the suspension alignment settings, allowing an increase in stability and cornering grip, braking performance and ride quality etc...



# Camber Technology

- **Successful DOT live product testing**
  - ✓ Endurance
  - ✓ Heat resistance
  - ✓ ECRE 30





# Fuel Efficiency Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Greater fuel efficiency**
  - ✓ Rolling resistance reduction
  - ✓ Reduced scrub – no need for toe-in
  - ✓ Eliminates need for wide-profile tires – reducing wind profile, rotational weight and rolling resistance
  - ✓ Reduction in raw materials requirements



# Grip Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Greater lateral / overall grip – G-force**
  - ✓ Up to .4 additional G's in less than ideal conditions observed
  - ✓ Tremendous transitional response thru reduced / eliminated carcass / tread pendulum swing
  - ✓ Substantially improved control and feel under all conditions
  - ✓ Cambertire's natural tendencies for turning when loaded – as opposed to a forced turn with a square tire – create a completely different and improved interaction between the vehicle and the ground





# Braking Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

## ■ Improved braking

- ✓ Improved contact patch control
- ✓ Better contact pressure through out-of-phase sidewall lengths
- ✓ Cone affect uniquely generates contact pressure during braking

### **GPS data acquisition results:**

On EVO X with stock brakes we saw repeatable 23.8% shorter stopping distances from 60-0 mph as compared to best online published results for EVO X.

Of the 21 vehicles tested (results published online) capable of stopping in under 100' from 60mph, our EVO X with our tires stopped 6.8% better than the first place finisher.

*(The 21 comparable vehicles were of all price ranges and performance including Ferraris, McLarens, etc.)*

# Acceleration Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Improved acceleration**

- ✓ Drastically less wheelspin, even with solid axles and narrower, similar compound tires
- ✓ Substantial reduction in spinning due to “out of phase” tire contact
- ✓ Improved control on bumpy/uneven/cracked surfaces due to “out of phase” contact by design



# Stability / Rollover Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Increased stability / reduced rollover risk**
  - ✓ Effective acute tread-to-sidewall angle means that under load the sidewall must stand up to even get to where all other current tires start from
    - Example: in a left turn weight shifts to the right tire(s) as carcass swing occurs. The acute sidewall-to-tread angle attempts to open up, however in order for it to occur, it cannot, because of the weight transfer / keeping it down. In an equal and opposite reaction which maintains tire shape control in completely new and unique and beneficial ways.
  - ✓ Tire does not fold under as all other tires do under extreme loads
  - ✓ Promotes more stability for body control due to the beneficial wheel angle

# NVH Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Improved NVH – notably smoother ride**
  - ✓ **Substantially muffled impact noise on road irregularities**
  - ✓ **Eliminates tire “skip” on choppy surfaces, regardless of speed**
  - ✓ **High performance braking on uneven surfaces**  
*(GPS results conducted on broken pavement under poor conditions still resulted in record-braking results.)*



# Rolling Resistance Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Lower rolling resistance, lower fuel consumption, carbon footprint**
  - ✓ No need, or less need for toe-in alignments, which reduces scrub
  - ✓ Narrower tire profile reduces wind profile when achieving same performance as wider square tires – leading to improved ride compliance
  - ✓ Less rotational
  - ✓ Less contact
  - ✓ Less rubber / cost / raw materials / shipping

# Treadwear Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Improved treadwear**
  - ✓ More even contact pressure
  - ✓ Less need for extra camber
  - ✓ Better graining / wear patterns





# Heat Reduction Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Reduced heat build-up for on road and racing**
  - ✓ Cooler tread and sidewall temperatures maintain more stable air pressure / less pressure gain
  - ✓ Eliminates “heat cycling out” and “getting greasy” during racing
  - ✓ Six times longer tire life and a full gear higher speed capability with far better control during drift competitions  
(tested with 50% shallower tread death and significantly stickier compound and higher speeds)
  - ✓ Never had any Cambertire™ failures!

# Ride Quality Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Notably improved ride quality**
  - ✓ Immediately noticeable improved ride quality
  - ✓ Substantial reduction in N.V.H.
  - ✓ Improved safety and control over rutted/cracked and bumpy surfaces for cornering, braking and emergency maneuvers
  - ✓ Acute angle and cambered stance substantially reduces tread pendulum swing minimizing reaction time delays
  - ✓ Improved control and predictability on transitional (slalom) turns
  - ✓ Delayed ABS stability control intervention through fundamentally improved interaction between vehicle and ground



# Green Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

## ■ Green benefits

- ✓ Can reduce tire width and overall size
- ✓ Decreases rolling resistance
- ✓ Improves fuel economy
- ✓ Extended tire-life span
- ✓ Reduced carbon footprint
- ✓ Reduced emissions
- ✓ Decreased landfill usage
- ✓ Can achieve or better performance with a narrower tire through improved functionality



# Marketing Benefits (Observed)

*NOT IN ORDER OF IMPORTANCE*

- **Improved stability**
  - ✓ Safety in all conditions
  - ✓ Uniquely visibility different
  - ✓ Fuel economy
  - ✓ Noise vibration / harshness





# Benefits Summary (Observed)

*NOT IN ORDER OF IMPORTANCE*

- ✓ Greater fuel efficiency
- ✓ Greater lateral / overall grip – G-force
- ✓ Improved braking performance
- ✓ Improved acceleration
- ✓ Improved stability
- ✓ Improved NVH – notably smoother ride
- ✓ Lower rolling resistance
- ✓ Improved tread wear
- ✓ Reduced heat build-up
- ✓ Improved ride quality
- ✓ Green
- ✓ Marketing

# Camber is Better

	CAMBER TIRES	CONVENTIONAL TIRES
<b>CORNERING</b>	Wider center of gravity -- increased stability	Center of gravity shifts past center -- causes instability (carcass swing and distortion)
<b>ALIGNMENT</b>	Straight alignment -- lower resistance	Toe-in alignment -- high friction, rolling resistance
<b>FUEL CONSUMPTION</b>	Measurably increased fuel economy -- efficient and increased acceleration	Inefficient fuel consumption -- inefficient handling, increased friction
<b>STABILITY</b>	Decreased roll over -- wider center of gravity	Increased roll over -- narrower, off-center of gravity
<b>TRACTION</b>	Increased traction -- due to larger tread contact area/improved tread to road surface interface	Decreased traction -- due to narrow tread contact area
<b>TEMPERATURE</b>	Consistant across entire tire width -- creating better tire wear	Uneven heat transfer -- causing blistering
<b>LONGEVITY</b>	Reduced wear -- less friction, better heat transfer	Increased wear -- tire friction, inconsistent heat transfer
<b>CONTROL</b>	Increased turning reaction -- reduced tire carcass swing and distortion	Diminutive performance -- stretched / forced turning



# Additional Technology Available NOW

*NOT IN ORDER OF IMPORTANCE*

- ✓ **Active morphing variable tread depth**  
rings true to all consumers who (as Jay Leno pointed out) have seen the inside of the tire all worn out but lots of tread left on the outer tread area
- ✓ **Rockers**  
added handling / stability / braking under carcass swing without adding rolling resistance in straight line

# On-road Applications

*NOT IN ORDER OF IMPORTANCE*

- ✓ Standard automobiles
- ✓ High-performance cars
- ✓ SUVs
- ✓ Trucks
- ✓ Trailers





# Off-road Applications

*NOT IN ORDER OF IMPORTANCE*

- ✓ Construction equipment
- ✓ Lawn and garden
- ✓ Trailers
- ✓ Agriculture equipment
- ✓ ATV / UTV
- ✓ Rally / off road racing
- ✓ Military



# Outdoor Sports Applications

*NOT IN ORDER OF IMPORTANCE*

- ✓ ATVs
- ✓ UTVs
- ✓ Off-road truck racing
- ✓ Rallying
- ✓ Golf carts
- ✓ Go carts





# Utility Applications

*NOT IN ORDER OF IMPORTANCE*

- ✓ Flat bed trailers
- ✓ Live stock / horse transporters
- ✓ Boat trailers
- ✓ Semi trailers



# Racing Results

## SCCA Pikes Peak National Race - August 2011

- First race use of Cambertire™ – using 2 degree street model
- Coys custom wheel and tire Subaru Impreza SCCA car
- 1st Place FINISH





# Magazine Test Results

## Automobile Magazine

- Named Cambertire™ one of “Ten Most Significant Emerging Technologies”
- Comparison test vs. ADVAN A13 (OEM Lancer Evolution)



# Magazine Test Results

## Automobile Magazine

- ✓ Results confirm Cambertire™ does provide measurable advantages over conventional rectilinear tire geometry
- ✓ Shortened stopping distance by 11 feet
- ✓ Increased cornering grip by over 4%
- ✓ Steering and feedback “clear and concise” on Cambertires

**“Even more amazing” was on-road performance, “traversing pavement imperfections with... much less trauma transmitted through the car’s chassis.”**



# Jay Leno's Garage

“While most of us just kick the tires, John Scott of Optima Sports is a true tire technologist. That's why he's invented this revolutionary new tire, which promises less wear, greater fuel efficiency, enhanced handling and performance, and extended life.”

- Jay Leno



# Automotive Journalist Testing

## Matt Farah

- Owner and Host of [www.thesmokingtire.com](http://www.thesmokingtire.com)
- Co-host with Adam Carolla on "The Car Show" Speed TV 2011.

**“Super predictable.”**

**“Against all odds, a man named John Scott has actually reinvented the wheel... or in this case the tire.”**





# Pro Driver Opinion

## Thomas E. Sneva

- Winner of 13 Indy car open-wheel races, including the Indy 500 and member of the Motorsports Hall of Fame

“With the Optima Cambertire™ you get all the advantages of camber without introducing any of the negatives. I believe that commercializing this technology not only will yield an improvement in performance capabilities for motor sports, as well as a revolution in the passenger tire business, but also merits humanitarian purpose because tires that last longer are better for the environment and tires that are safer are better for everyone.”



# Quotes

**“Incredible!”**

**“We briefly tested a set with two degrees of camber on a Mitsubishi Evolution and came away impressed. The ride was quiet and comfortable over rutted roads, but the tires still returned the incredible steering response and cornering grip we expect of an Evo.”**

*-John Wong, AutoWeek's Associate Editor*

**“Now that we have enjoyed a few miles over the road on these tires and had a chance to conduct two performance tests, we are more convinced that these tires are worthy of our acclaim.”**

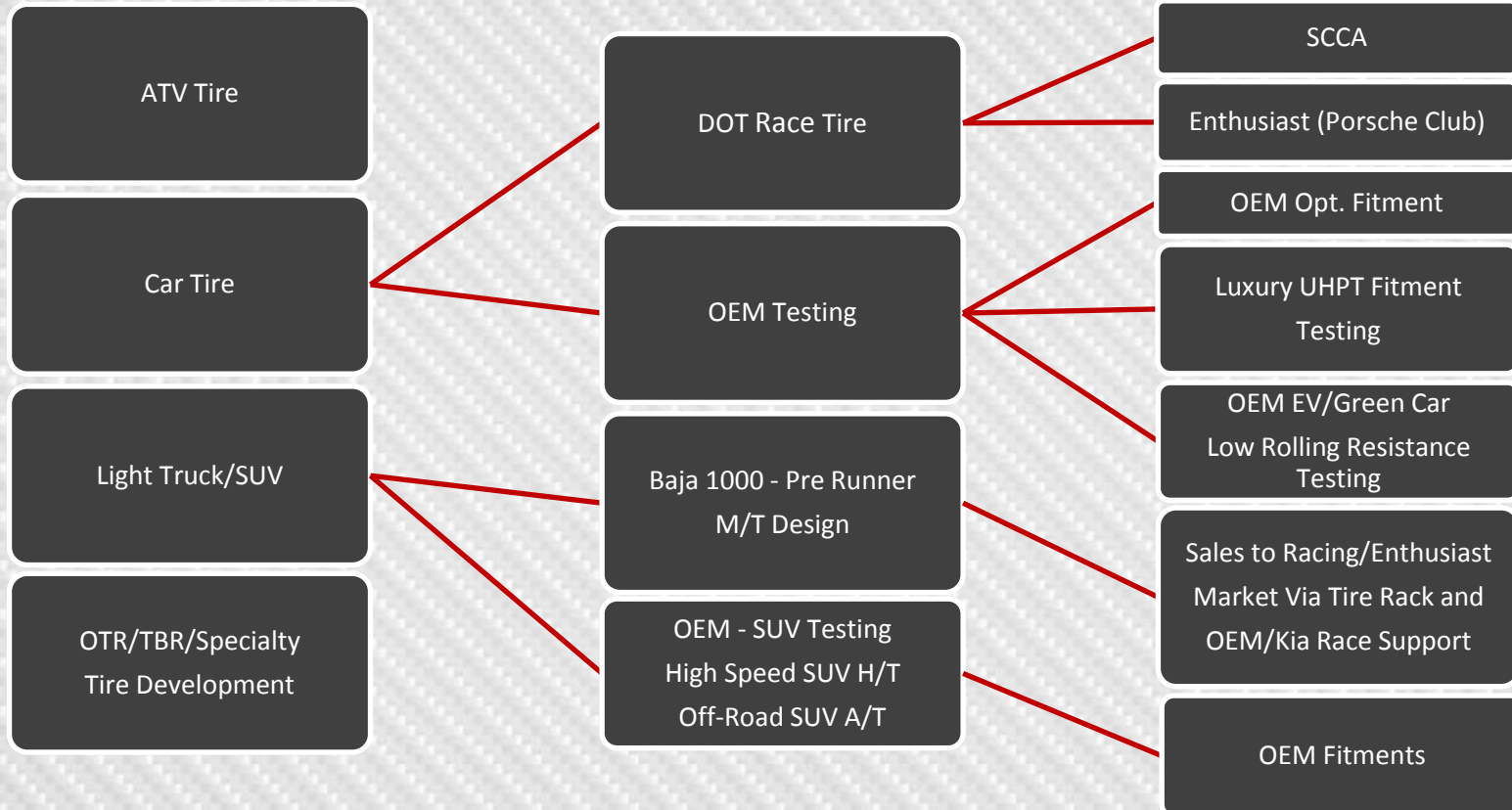
*-Don Sherman, Automobile Magazine and New York Times*

**“This is either the best handling car I have ever driven in my life, or definitely one of the best. We couldn't go fast enough to get the tires to slide.”**

*-Jimmy Dentici, Current GT3 National Champion*



# Initial Product Development by Category



# Current Sizes

Camber Angle	Available Sizes	Target Applications
2 Degree	245/45R17	OEM and Replacement
2 Degree	245/40R18	OEM and Replacement
3 Degree	265/35R18	DOT- Approved Race Tire
4 Degree	265/35R18	Racing/Drifting – Track & Road

## 2 Degree



## 3 Degree



## 4 Degree

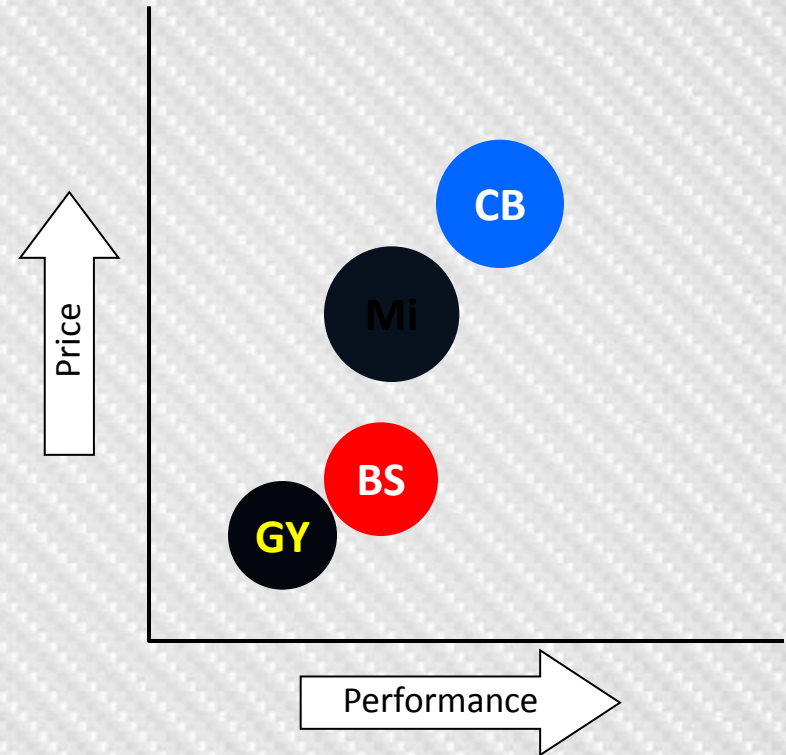




# Potential Positioning

**Cambertire™** has significant performance advantages over established tires, therefore it can command a higher price due to its:

- ✓ Improved ride comfort
  - ✓ Better performance
  - ✓ Longer treadwear
  - ✓ Greater safety
- *Note: Cambertire's are manufactured using standard materials and manufacturing processes and mount on standard wheels/rims*



# OEM Testing of Cambertire™

## Feb 2013

- Results/observations - control tire (0 degree) vs. 2 degree Cambertire™ with identical size, construction, tread and compound
- ✓ Handling – 2 degree Cambertire™ was easier to maintain at the limit in lateral traction
- ✓ NVH - All OEM engineers agreed that the 2 degree tire had a remarkably smooth and quiet ride (actually “unbelievable” was the word heard more than anything else), even over their rough surface road (including railroad tracks, off-kilter manhole covers, speed bumps etc.)
- ✓ All remarked at the ease of turn-in and that the tires were remarkably responsive to driver input, particularly when leaning into a curve. They felt confidence in the tires.



# OEM Testing of Cambertire™

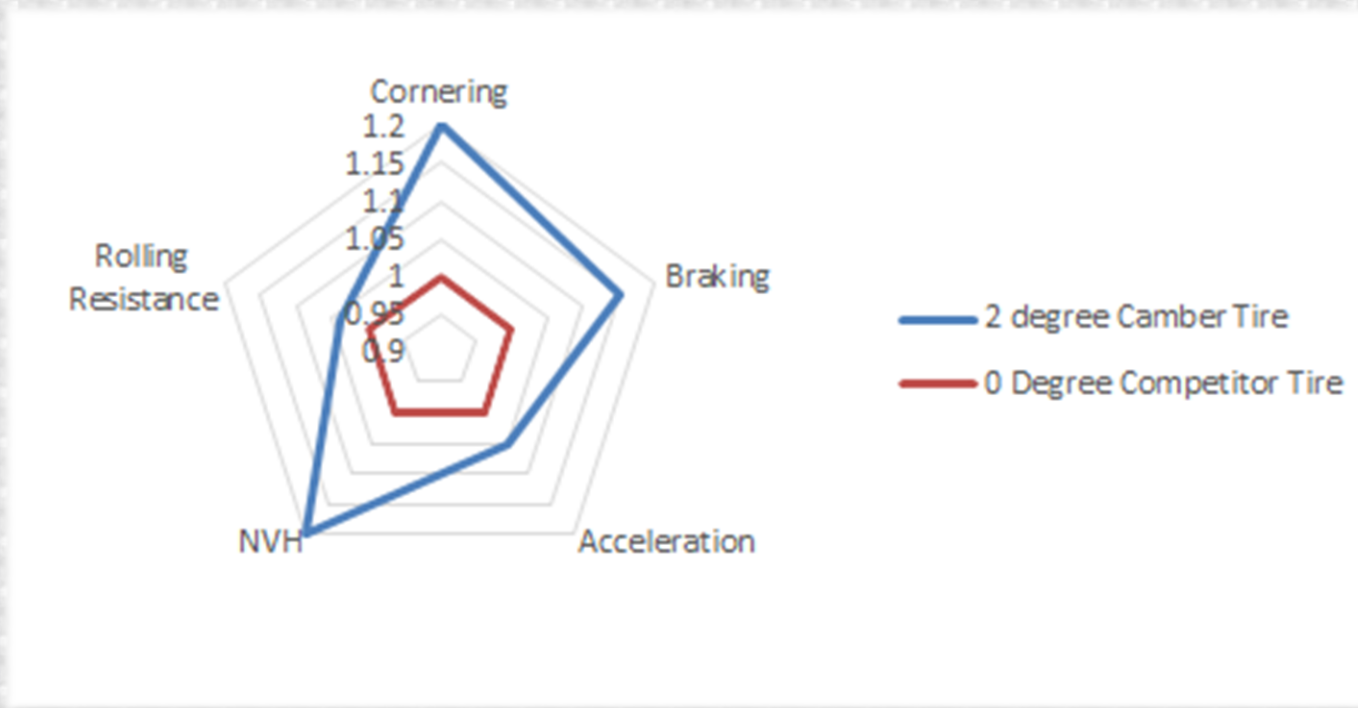
- ✓ Demonstration of 3 and 4 degree tires on drift cars. In autocross-style course, drifting and on the rough surface simulation road. All were impressed with the unparalleled shock absorption the tires exhibited, the incredible control, sharp cornering and predictability.
- ✓ The drift drivers were simply amazed at the performance of the tires. Dan, the owner of the drift-specific suspension fabrication company, commented that while he has been drifting for many years, he has never been able to drift past third gear, but he had no problem doing so up and through the top of 4th gear in either car. He said it is incredibly smooth when going into a drift and incredibly easy to control.
- ✓ The extreme durability of the Cambertire™ was evident as the tires looked great after a full day of drifting.

# OEM Testing of Cambertire™...

- ✓ One driver commented that “now having drifted on the Cambertires, I would not want to drift on anything else.”
- ✓ The OEM engineers were all impressed with the performance of the 3 and 4 degree tires.
- ✓ OEM found the results of the first test promising. They have requested specific tires to conduct additional testing on their own test fleet of vehicles for potential fitment in their product line. They have already identified specific vehicle fitments that they would target for fitment. Cambertire™ will collaborate with OEM on further testing.



# Cambertire™ vs. 0 Degree Tire



# Opportunities - Tire Manufacturer

## License Cambertire™ technology for one or more product categories

- ✓ Gain 1st mover advantage among major tire manufacturers
- ✓ Lock in low percentage licensing fee
- ✓ Negotiate short to long term exclusivity for one or more product categories utilizing Cambertire™
- ✓ Ability to lock in OEM and replacement market exclusivity
- ✓ Differentiate product line and out-perform competitors



## Opportunities - OEM Vehicle Manufacturer

### License Cambertire™ technology for one or more vehicle categories

- ✓ Gain 1st mover advantage among major OEMs
- ✓ Lock in low percentage licensing fee
- ✓ Negotiate short to long term exclusivity for OEM fitment of one or product category utilizing Cambertire™
- ✓ Differentiate product line and out-perform competitors

[Click](#) To Play Drift Drivers Interview

# Contact

## Optima Sports

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[cambertire.eu](http://cambertire.eu)





# Q & A



# Videos

[Click](#) to play Matt Farah's review and video

[Click](#) to play Jay Leno's video

[Click](#) to play John Scott's video

[Click](#) to play OEM testing video

[Click](#) to play OEM demonstration video

[Click](#) to play Happy Mustang Customer video






CAMBERTIRE

Company Technology Media Gallery Buy Now Size Survey

## CAMBERTIRE



### SIMPLY THE WORLD'S BEST

"All truth passes through three stages: First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident."

- Arthur Schopenhauer - 1788 - 1860



#### Our Company

The Mission of Optima Sports is ongoing research and development, promotion, license, and distribution of a patented tire technology that we believe literally re-invents the wheel: tires with built-in camber for cars, trucks, SUVs, trailers, or any other vehicles with full or front independent Suspension. We call this revolution in automotive technology the Cambertire.

[More](#)



#### Technology

Cambertire technology is able to be applied to every day applications as well as sport and track use. Vehicles equipped with more camber from the factory often experience inner tire wear. Using a Cambertire on vehicles like this will increase tire life as well as handling.

[More](#)



#### Media

The SCOTT Cambertire is the tire of champions! Our innovative new design takes tire technology to a whole new level with nearly endless benefits on and off the track. Our patented tire design has been refined, perfected, tested and DOT approved.

[More](#)

#### Recent Events

SCCA Sale Autocross - September 8, 2013

#### Upcoming Events

The Future of Tire Technology - October 28 - 30, 2013

#### Contact Us

Please help us choose the next tire sizes and camber angles to make available. We are listening...

