

NEXT MEETING JANUARY 15

HIGHLIGHTS...

- *This Month's Presentation... Rubberized Asphalt for Quiet Pavements*
- *Message from the Chair*
- *Recap of November's Meeting*
- *Receive Newsletter by Email*
- *New Technology at Ford*
- *Newsletter Ad Section*

Dinner Presentation...

Rubberized Asphalt for Quiet Pavements in Arizona...

or Where the Rubber meets the Rubber

**Presented by
George Way**

Rubberized asphalt, "Asphalt Rubber" (AR) to paving engineer,) was invented in Phoenix in the late 1960's by Charles "Charlie" McDonald. Charlie was looking for an improved compound for patching cracked asphalt surfaces, and ended up inventing more than he bargained for. Early field trials, on projects between 1988 and 1992, showed that an AR overlay reduced cracking and maintenance costs, it was very durable in the hot and cold climates in Arizona, and quite amazingly, it significantly reduced roadway noise.

The patented material is essentially a mixture of 20 percent ground tire rubber and 80 percent asphalt. Tire rubber is ground to about the size of coffee grounds, and when mixed with hot asphalt, the rubber swells to form a more gel like mixture with superior elastic strain properties. In the beginning, it was difficult to use because proper mixing and pumping equipment had yet to be invented. As a result, much trial and error experiments were needed to develop the material into today's commonly used product. The end result of this effort lead directly to the AR hot mix overlays being placed on the Phoenix Metropolitan freeway system to reduce noise. The application of a one inch thick layer of AR hot mix to a concrete surface significantly reduces the tire pavement interface noise, and recent research indicates that it is the quietest roadway surface measured to date.

George Way will provide an overview of the material, its benefits, and what is in store for future applications.

George Way, P.E.

George Way is an engineering graduate of Arizona State University and a registered Professional Engineer. George has been with the Arizona Department of Transportation for 34 years, working in the areas of Research, Materials, Pavement Management and presently Pavement Design. He is the Chief Pavement Design Engineer overseeing the Pavement Design Section with a staff of twelve people including other Professional Engineers and Technicians. This section designs or approves the pavement designs for all the Department's paving projects. George worked on the very first major research test project using asphalt rubber in 1972. He has authored numerous research papers about asphalt rubber since then and given numerous presentations around the world on this subject, as well as on pavement design. He has appeared on NBC Dateline as an expert on this subject and received numerous awards for his work in the field of pavement design and the use of asphalt rubber.



DATE	TIME	LOCATION	COST
Thursday	Social - 6:00 pm	Holiday Inn (Phoenix Airport)	Students - \$10
January 15	Dinner - 7:00 pm	44th St. & Washington	Members - \$18
	Presentation - 8:00 pm	602-273-7778	Guests - \$19

***RSVP by 2:00 pm Monday January 12. Call Robert Q. Riley: 623-872-3475**

Message From the Chair.....

Happy New Year! As you're reading this issue of the newsletter, 2003 and the holiday season are a recent memory and 2004 has been ushered in with great expectations and a bit of fanfare.

I trust the holiday season was a good time for all of you. We don't hold a December meeting with the hope that our members can spend more time to spend with friends and family over the holidays. Perhaps some of you received an SAE-related gift for Christmas!

As promised, our November meeting was blessed with two great presentations. Our newsletter editor, Bob Riley, gave an excellent coffee talk on his experiences building a replica of the 1902 Wright Brothers glider. Bob's photos of building the glider in his house reminded me of Henry Ford and his first car. Remember how Ford had to knock a wall out of his garage to get the car out? I don't think Bob had to remove any walls, but it sure looked like a tight fit!

Allan Watts, an engineer, patent attorney, and a faithful member of our local section, gave the main presentation on protection of intellectual property. Allan's presentation touched on four main areas: copyright expressions, trademarks, trade secrets, and patents. He gave detailed descriptions of each and some humorous examples from his years practicing as a patent attorney. His presentation was followed up by a good number of questions, one sure way to know that a presentation was interesting and well-received.

The new year brings a new group of meetings and some exciting presentations in the coming months. January's meeting topic will be the advanced road surface technology that is starting to appear on freeways around the Valley. Ever wonder why some sections of road are quieter than others? Come to the January meeting and find out why!

We have now completed the main presentation schedule for 2004. Check the calendar elsewhere in this issue to review the topics we have scheduled. I'm sure you will find several items of interest to you. Of special note are two separate events in May 2004. In addition to our regular May meeting, we also are planning on participating in the annual ASME Steak Fry in May. This will be an excellent opportunity for our members to meet and socialize with other engineers in the Valley.

We are also looking at beginning "A World in Motion" training in schools in the Valley following a hiatus of several years. Please speak with one of the members of the Governing Board at the next dinner meeting if you are interested in helping.

I look forward to seeing many of you at the January meeting. If you are new to the Section or do not attend regularly, please be sure to introduce yourself to us. We're glad to have you aboard in 2004.

Todd Zuercher

Recap of November's Meeting by Kevin Willson

Thanks to SAE Chapter member Allan Watts, an Intellectual Property attorney with Snell and Wilmer, for his insight into protecting ideas through the use of Copyrights, Trademarks, Trade Secrets and Patents. As Engineers and Designers, we are often presented with Intellectual Property issues. Yet, most of us know very little about the protection available through the law to keep these ideas as well as how to not infringe on other persons property rights.



Todd Zuercher (right) thanks speaker Allan Watts for a great presentation.

Allan presented to us four key forms of legally protecting ideas. The first is Copyrights. This protects forms of expression such as text, art, audio, video and software. The second is Trademarks. These types of ideas readily identify a good or service in the market place and are connected to the source of that good or service. A few examples of well known trademarks are the CocaCola logo, Holsum bread and the Nike 'Swoop'. These trademarks identify a company that produces a product and the associated reputation and quality of that product. The third protection is Trade Secrets. These are ideas that are not widely known and offer an economic benefit to the secret owner. If reasonable precautions are taken to keep information secret, the law may protect the information if it is stolen or disclosed by mistake. The fourth Intellectual Property protection available is Patents. In exchange for disclosure of an idea, patents provide a monopoly for functional inventions for twenty years. Machines, manufactured goods, methods and substances can all be patented. Being able to search patents is a good way to find ideas as well as determining if an idea you are going to use is already patented. Knowing if an idea is already patented will help ensure that you are not infringing on the Intellectual Property rights of others.

As an example of a practical use for patents, Allan brought in a clamp that had been discarded by his neighbor. The patent number cast into the clamp provided a means to

which specifications for that clamp could be obtained. Although the clamp was decades old, a patent disclosure provided a detailed description of the assembly of the clamp and for what purpose it was manufactured.

Thanks again to Allan for providing a wonderful insight into the protection of Intellectual Property rights. Allan can be reached at awatts@swlaw.com for more information.

Our coffee talk was provided by our very own newsletter editor Bob Riley. In 1972, Bob constructed and flew a replica of the Wright 1902 glider making him the first person to actually fly a 1902 glider since the original Wright Brothers experiments. That glider was donated to the California Museum of Science and Industry at Los Angeles where it remained until it was damaged during remodeling. Bob was asked to refurbish the glider for the new California Science Center, a task which he gladly accepted. Unfortunately, during the refurbishment, a fire destroyed the first replica requiring Bob to construct, almost from scratch, a second replica for the California Science Center. In November 2003, Bob had the privilege of dedicating the newly constructed replica in California, more than a century after the Wright Brothers original experiments.



Bob Riley, November's Coffee Talk speaker.

For the coffee talk, Bob entertained us with slides from the dedication and of the construction phase of the new glider as well as a general overview of the Wright Brothers design. The ingenuity of two bicycle mechanics, who didn't finish high school, provided the basis for control schemes still used in modern aircraft.

Thanks Bob for the wonderful look at a project that has been a big part of your life and for the insight into the Wright Brothers first flights in an un-powered glider more than 100 years ago.

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We are in the process of making a gradual transition to an electronic Newsletter. Members who subscribe will receive a monthly email containing a link to the newsletter. Simply click on it to receive your newsletter. To subscribe, go to: <http://www.sae-arizona.org/newsletter/> and click on the appropriate link.

New Technology Developments at Ford

2005 MUSTANG: COLOR CONFIGURABLE CLUSTER:

It's something never seen on a production car before - but it'll be on the all-new Mustang. A color-configurable instrument cluster can be back-lit in any of 125 backgrounds by "mixing" three primary colors with the turn of a dial. The effect can be subtle or dramatic, particularly at night, as the speedometer and tachometer illuminate in variations of blue, green or red hues, creating a unique, personalized driving mood. It uses six light-emitting diode (LED) lights that are selectable in order from green, blue, purple, white, orange and red. The LEDs are filtered through innovative "light pipe" fittings on the sides of the speedometer, tachometer and vehicle operation indicator panel to create the numerous color options. Ford also is allowing customers to take a piece of the new Mustang home early. A screen saver that teases the new car and illustrates how the new color-configurable instrument cluster will work is available at www.fordvehicles.com.

IMPROVED HYDROGEN POWERED FORD FOCUS WINS GOLD AWARD

-- A hydrogen internal combustion engine powered car affectionately called "Kermit" for its green paint has won the gold award for CO₂ emissions at the world's premier clean vehicle competition -- the Michelin Challenge Bibendum. The H₂ICE Ford Focus was made even stronger for the event with the installation of a new supercharger with a Lysholm positive displacement screw-type compressor, providing more low-end torque and better off-the-line response. The powertrain is a supercharged and intercooled 2.3-liter 16-valve four-cylinder engine combined with a five speed manual transmission. An oversized fuel rail on the engine is designed to dampen out the pulsation of the gaseous fuel. In the rear of the vehicle is a 5,000 psi aluminum fuel tank strengthened with overlapping carbon fiber that holds five kilograms. The H₂ICE engine has many benefits versus hydrogen fuel cells. H₂ ICE's are all-weather capable, requiring zero warm-up and have no cold start issues. H₂ ICE's can easily achieve SULEV emissions, or better, and have more than 99 percent reduced CO₂ vehicle emissions.

FORD RESEARCH VEHICLE S2RV NAMED "BEST OF WHAT'S NEW" BY POPULAR SCIENCE MAGAZINE

-- The grand award winner in the auto technology category is a vehicle called S2RV, which stands for "Smart Safe Research Vehicle." It combines advanced accident avoidance systems and intelligent vehicle technology in a modified Ford Explorer. "Best of What's New" culminates a year of searching, testing and deciding from among a huge range of products, all of which stand to change the way we live, work

and play. Only the best of the bunch-those products that inspire awe, envy, and admiration-are awarded inclusion in "Best of What's New." The highly anticipated December issue is the most widely-read issue of Popular Science of the year. The telematics and accident avoidance systems in the S2RV simplify life for customers and help keep them safe. Voice control and touch screens access the S2RV's smart and safe features, which include reconfigurable displays, moveable switches, rearward and frontal cameras, night vision and advanced telematics. There has never been a research vehicle containing more advanced technology than S2RV.

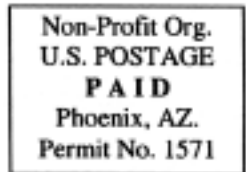
Meeting Schedule

January 15	- Advances in Road Surfaces Technology
February 19	- Retractable Hardtop Technology
March 18	- Panel Discussion - Are Aerospace and Automotive Technologies incompatible - Can the aerospace engineer learn from the automotive engineer and vice versa.
April 15	- Intelligent Vehicle Technology: What is it, What has been implemented, What is in the future?
May 20	- Nissan Titan Pickup

Newsletter Ad Section

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<http://www.sae-arizona.org/newsletter/>

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