

The OHIO ACADEMY of SCIENCE

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Fostering curiosity, discovery and innovation to benefit society.

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Fairfield Ohio inventor receives first Ohio Patent Award

Invention required hundreds of trials to find right formula to bond metal to rubber.

For immediate release

Columbus (March 30, 2010) ... A patented method of treating metal to bond better with rubber has garnered Prof. William Vanooij and colleagues of ECOSIL Technologies LLC of Fairfield, Ohio the first **Ohio Patent Award** from The Ohio Academy of Science (OAS) and The Ohio State Bar Association (OSBA) Intellectual Property Law Section. The award also recognizes their attorney, Martin J. Miller of Cincinnati.

The invention uses silanes—a class of chemicals that contains the element silicon—as a coupling agent to bond two otherwise non-bonding and incompatible surfaces. Cooper Tire & Rubber in Findlay, Ohio has successfully tested the chemical on the steel cords in their tire belts to improve the performance of radial tires.

Prof. Vanooij said that his research goal with silanes to bond rubber to metals was to find a process that could replace the brass coating on the steel cords in radial tires because brass technology has several drawbacks, one of which is that brass-coated steel is sensitive to corrosion. “Further,” he said, “the exact formulation of the natural rubber in the tire, which is optimized for adhesion, makes that rubber sensitive to heat aging, the underlying cause of the tires failed by tread separation that one can sometimes observe along US highways, especially in the summer.”

Vanooij said that the search for a brass coating replacement at the University of Cincinnati, where at the time he was a Professor in Materials Science, did not quickly identify the silanes he and his students used.

“We had to try almost 100 different silanes before after about two years we accidentally stumbled on a particular mixture of two silanes that worked perfectly,” he remarked.

“An important finding was that this mixture works with many different rubber types and formulations and with a wide range of metals. Thus, the applicability of the process is much greater than in tires only. It works only in a certain ratio of the two silanes, but it outperforms the currently used brass coating in tires in terms of aging resistance and corrosion protection of the steel filaments,” he continued.

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Ohio Patent Award – 2

March 30, 2010

Ohio has a rich history of innovation including the controlled, powered airplane, the automobile self-starter, the flip-top can, the vaccine for feline leukemia, and numerous other patented inventions that have had a worldwide impact.

A panel of five members from the Academy's Board of Trustees and the Intellectual Property Law Section of OSBA, evaluated 11 applicants for the patent award based on several criteria that included the following: (a) most prolific (greatest number) of patents in a year, or (b) a patent which has significantly impacted the state of Ohio through positive changes measured by economic, social change, health benefits, growth of new industries, jobs, or other possible criteria. The attorney associated with the winning patent also will receive the attorney award.

The inventor will receive an engraved plaque at the Academy's annual meeting on April 10 at Ohio Northern University, Ada. The attorney of record of the patent or his/her law firm will also receive an engraved plaque at the Academy's annual meeting or at the annual convention of the OSBA, at their choosing. Further details are posted at www.ohiosci.org/PatentAward.pdf. Email questions to oas@iwaynet.net or call 614.488.2228.

The Ohio Academy of Science is a membership-based, volunteer-driven, not-for-profit organization. The Academy is the leading organization in Ohio to foster curiosity, discovery, and innovation and to unite all who value education, science, engineering, technology, or their applications to benefit society. The Academy conducts an annual meeting and science days, and publishes an international, multidisciplinary, scientific journal. See <http://www.ohiosci.org>.

Editor's Note: Here is contact information on Prof. Vanooij and Mr. Miller:

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***Ohio Patent Award
Roster of Applicants
March 30, 2010**

Akron

Dr Joseph P Kennedy
The University of Akron
*Thermoplastic Elastomers of Isobutylene and
Process of Preparation*
Mr Ray L Weber, Attorney
Renner Kenner Intellectual Property Law

Barberton

Mr Albert D LaRue
Babcock & Wilcox Power Generation Group Inc
Burner with Center Air Jet
Mr Michael J Seymour, Attorney
Babcock & Wilcox Power Generation Group Inc

Bowling Green

Prof Robert K Vincent
Bowling Green State University
*Method and Apparatus for Detecting Phycocyanin-
pigmented Algae and Bacteria from Reflected Light*
Mr Roger A Gilcrest, Attorney
Schottenstein Zox & Dunn Co LPA

Cincinnati

Mr Paul Dennis Trokhan
The Procter & Gamble Company
Deflection Member
Mr Monte D Witte, Attorney (Deceased)
The Procter & Gamble Company

Dayton

Prof Chandler Allen Phillips
Wright State University
System & Method for Treating Paralyzed Persons
Mr John W Donahue, Attorney (Retired)
Biebel French & Nauman (Closed 2004)

Fairfield

***Prof William Vanooij**
ECOSIL Technologies LLC
Rubber-to-Metal Bonding by Silanes
Mr Martin J Miller, Attorney
***Martin J Miller LLC**

Kent

Dr Christopher J Woolverton
Kent State University
Detection and Amplification of Ligands
Mr Scott M Oldham Esq, Attorney
Hahn Loeser & Parks

Kent

Dr J William Doane
Kent Displays Inc
*Liquid Crystalline Light Modulating Device and
Material*
Mr Lowell Heinke, Attorney
Watts, Hoffman, Fischer, & Heinke

Richfield

Dr Steve G Belovich
Iqware Inc
*A Virus-Immune, Rule-Based Cross-Platform
Software System*
Mr W Scott Harders, Attorney
Brennan Manna & Diamond

Toledo

Mr Donald K Wedding
Imaging Systems Technology
Gas Discharge Display
Mr Donald K Wedding, Attorney
Imaging Systems Technology

Vandalia

Dr Gopi Venkatesh
Eurand Inc
Timed Pulsatile Drug Delivery Systems
Dr Mark Levy, Attorney
Thompson Hine LLP

***Awardee of the 2010 Ohio Patent Award**

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