

Register by January 20th & Save \$300

www.MagneticsMagazine.com

DISCOVER

Market Trends & Opportunities

NETWORK

with Industry Leaders

INTEGRATE

New Technology

Brought to You by the Publisher of

MAGNETICS
BUSINESS & TECHNOLOGY

Co-located with

Motor, Drive & Automation Systems 2011
Advancements in Motor Control and Power Electronics Technology

MAGNETICS 2011

THE WORLD'S PREMIER FORUM ON MAGNETIC APPLICATIONS, TECHNOLOGIES & MATERIALS

MARCH 1-2 • SAN ANTONIO, TEXAS

Contents

| | |
|-------------------------------|---|
| Schedule At-A-Glance..... | 2 |
| Hotel Information..... | 2 |
| Registration Information..... | 2 |
| Pre-Conference Workshops..... | 3 |
| Conference Program..... | 4 |
| Sponsors & Exhibitors..... | 9 |

Schedule: Day 1

| | |
|----------|--------------------------------------|
| 7:00 AM | Registration & Continental Breakfast |
| 8:05 AM | Opening Address |
| 8:10 AM | Keynote Presentation |
| 9:15 AM | Featured Presentation |
| 10:00 AM | Networking Break |
| 10:45 AM | Track 1 Track 2 |
| 11:25 AM | Track 1 Track 2 |
| 12:00 PM | Networking Luncheon |
| 1:00 PM | Track 1 Track 2 |
| 1:40 PM | Track 1 Track 2 |
| 2:20 PM | Track 1 Track 2 |
| 3:00 PM | Networking Break |
| 3:10 PM | Product Demo |
| 3:30 PM | Track 1 Track 2 |
| 4:10 PM | Track 1 |
| 5:00 PM | Cocktail Reception |

Schedule: Day 2

| | |
|----------|--------------------------|
| 7:30 AM | Registration & Breakfast |
| 8:10 AM | Keynote Presentation |
| 9:15 AM | Featured Presentation |
| 10:00 AM | Networking Break |
| 10:45 AM | Track 1 Track 2 |
| 11:25 AM | Track 1 Track 2 |
| 12:00 PM | Networking Luncheon |
| 1:00 PM | Track 1 Track 2 |
| 1:40 PM | Track 1 |
| 2:25 PM | Conference Conclusion |

Contacts

- **Program:** Contact Heather Krier at HeatherK@infowebcom.com or 800-803-9488 ext. 129
- **Exhibit/Sponsors:** Contact Sue Hannebrink at SueH@infowebcom.com or 330-725-5812
- **Registration:** Contact Julie Williams at JulieW@infowebcom.com or 800-803-9488 ext. 117

WHAT'S NEXT?

ATTEND THESE SESSIONS TO DISCOVER THE LATEST ADVANCEMENTS, ECONOMICS & MARKET OPPORTUNITIES

- **The Global Permanent Magnet Industry: 2010-2020**
- **'Rest of the World Rare Earth Supply Chains' Galloping Forward**
- **Developing a New Transformer**
- **Soft Magnetic Cobalt-Iron Alloys for High Performance Motors and Actuators**
- **The USMMA's "Manufacturing First" Proposal for Sintered NdFeB Magnets**
- **Understanding China's Magnet Material Supply Channels: Past, Present and Future**
- **Rare Earth Resurgence: Re-Establishing a US Mine-to-Magnets Manufacturing Supply Chain**
- **Clean Energy Demand for Rare Earth Permanent Magnets**
- **Semi-Hard Magnets: The Important Role of Materials with Intermediate Coercivity**
- **Rare Earth Myths Debunked**

REGISTRATION & Hotel Information

MAGNETICS 2011

Registration: \$995

TEAM DISCOUNT

If two people from your company will be attending the conference, \$100 will be deducted from each attendee's registration fee. If three or more people from your company will be attending the conference, \$200 will be deducted from each attendee's registration fee.

FEDERAL PASS:

Registration: \$595

SINGLE DAY CONFERENCE PASS:

Registration: \$595

EXPO ONLY PASS

\$50

CANCELLATION POLICY

To receive consideration, all cancellations must be received in writing. Upon receipt, a refund or credit will be issued towards a future event produced by Webcom Communications, less a 25% administrative fee. (Cancellations which do not indicate preference will be issued credit.) No refunds will be issued within two (2) weeks of the event. Webcom Communications, Corp. will not be held responsible for cancellations or delays in programming due to acts of God, war, government disorder, curtailment of transportation facilities, or other emergency making it inadvisable, illegal or impossible to hold the meeting.

MOTORS 2011

Conference Upgrade: \$300

Provides access to both days of the conference and all the conference proceedings.

WAYS TO REGISTER

By Phone: 800-803-9488

Web: www.MagneticsMagazine.com

HOTEL INFORMATION

Grand Hyatt San Antonio
600 E. Market Street,
San Antonio, Texas, USA 78205
Phone: 210-224-1234
<http://grandsanantonio.hyatt.com>

A special room rate of \$199 is available for attendees. Be sure to reserve your room by February 7th, 2011, to receive this special rate. Be sure to mention Webcom Communications when reserving.



MAGNETICS BOOTCAMPS

Instructor: Dr. Stan Trout • Spontaneous Materials

Basic - Bootcamp I

February 28th • 8 a.m. to 12 p.m.

Beverages and Course Materials Provided

Register before January 28, 2011 \$395
Register after January 28, 2011 \$495

Advanced - Bootcamp II

February 28th • 1 p.m. to 5 p.m.

Beverages and Course Materials Provided

Register before January 28, 2011 \$395
Register after January 28, 2011 \$495

Basic - Bootcamp I Summary: The Bootcamp Workshops focus on the basics of Magnetism. If you need to understand magnets better for your job, want to get more from the conference presentations or are new to the field, then Basic - Bootcamp I is the right place to start.

Background: Assumes that one has little or no background in magnetism. The Bootcamp I workshop will cover the fundamental magnetic concepts such as hysteresis, what is magnetism, units, basic processing, magnetizing and thermal effects.

Basic/Advanced Bootcamp Package

February 28th • 8 a.m. to 5 p.m. - Lunch and Course Materials Provided

If something more advanced is what you are looking for, attend Bootcamp II. **Background:** Assumes someone has either taken a previous Bootcamp, either in Chicago (2007 or 2009) or Denver (2008) or Bootcamp I, or has some basic technical understanding of magnetism. After a brief review of the basics, including self-demagnetization and loadlines, we will discuss raw materials and their pricing, advanced processing techniques, manufacturability, design basics, new design case studies and what's new on the horizon.

Register before January 28, 2011 \$595
Register after January 28, 2011 \$695



MAGNETIC MATERIALS IN FINITE ELEMENT SIMULATIONS & THEIR APPLICATION IN ELECTRICAL MACHINES

Instructor: Chris Riley • Cobham Technical Services - Vector Fields Software

February 28th • 8 a.m. to 5 p.m.

Lunch and Course Materials Provided

Register before January 28, 2011 \$500
Register after January 28, 2011 \$600

Who Should Attend:

- Engineers and scientists using finite element software for modeling all types of magnetic equipment and devices
- Machine designers who are considering adopting finite element methods

This workshop will give a greater understanding of the possibilities for accurately representing the behavior of magnetic materials in finite element simulation. For engineers and scientists who have not used electromagnetic design software before, the program introduces simple material models and assumptions, leading on to advanced topics, such as hard material magnetization and hysteresis, for more experienced designers. Users of the Opera software will find it a useful review of the facilities available and the techniques for accessing them.

Benefits: This workshop will give a greater understanding of the possibilities for accurately representing the behavior of magnetic materials in finite element simulation. For engineers and scientists who have not used electromagnetic design software before, the program introduces simple material models and assumptions, leading on to advanced topics, such as hard material magnetization and hysteresis, for more experienced designers. Users of the Opera software will find it a useful review of the facilities available and the techniques for accessing them.

Tuesday, March 1st

7:00 AM REGISTRATION & CONTINENTAL BREAKFAST

8:05 AM OPENING ADDRESS

8:10 AM KEYNOTE PRESENTATION

The Global Permanent Magnet Industry: 2010-2020

This presentation will summarize the contents of the first Global Magnet Industry study ever prepared by three authors who are all experienced in the magnet industry. A summary of detailed industry production statistics with a 10-year forecast by magnet type and geographic region will be included. Hear an overview of all major applications and future technologies impacting the permanent magnet industry. The future role of China will be discussed along with a summary of raw material issues currently impacting or threatening the magnet industry. A detailed analysis of a comprehensive industry directory (more than 480 companies) will also be presented.

Walt Benecki, President • Walter T. Benecki LLC



9:15 AM FEATURED PRESENTATION

'Rest of the World Rare Earth Supply Chains' Galloping Forward

The demand of rare earths and rare earth magnets continue to rise, driven by consumer and government policy expectations for renewable energy technologies, off-oil transportation and other CleanTech innovations. While China remains the pre-eminent supplier of rare earth oxides, they have significantly reduced their exports. Prices for the rare earth magnet metals (Nd, Dy, Tb, Pr, and Sm) have jumped two-to-three fold through 2010. New raw material supply-to-metal processing chains are advancing but significant gaps and development risks continue to confront the industry. This presentation will provide an insider's view of the raw and process rare earth materials sector including up-to-date information and commentary on the major projects, processing capacity, prices trends and expectations.

*Ian London, Market Development & Energy Advisor
Avalon Rare Metals, Inc.*



10:00 AM EXHIBIT HALL OPENS / NETWORKING BREAK

10:45 AM

Potential Energy Savings Using Direct Drive Permanent Magnet Servo Motors

This presentation will compare the energy savings from using permanent magnet direct coupled motors to replace current geared and belt driven motors of various types including AC and servo motors. The larger size and larger magnet mass will be a higher cost motor but this high cost will be compared to the savings in the transmission components required for the gearing and the power transmission needed to couple the load to the smaller higher speed motors. Learn the guidelines to determine if a green energy efficient direct drive permanent magnet motor can cost effectively replace a standard motor and gearing solution.

*Lowell Christensen, Vice President of Engineering
TruTech Speciality Motors*

Understanding the Specified Q Factor for Magnetic Devices

The specified Q factor is not easily understood like other specified parameters such as inductance, resistance and dielectric strength. Understanding the Q factor from ground zero will help both the designers and manufacturers come up with a Q value that is satisfying to both parties. Attend this session to learn how to establish and specify a Q value appropriate to the manufacturing capabilities of your production facility. Benefit from the presenter's experience and background in understanding the importance of Q in magnetic devices like Inductors.

Samir Kagalwala, Chief Consultant • Power Magnetics Consultancy



11:25 AM

Magnetic Materials for MEMS and MAGMAS

The MEMS (Micro Electro-Mechanical Systems) or MAGMAS (MAGnetic Micro-Actuators and Systems) is an emerging market, while the production of micro scale permanent magnets (PM) is still a huge hurdle to overcome in order to satisfy the needs of this industry. Replacing electrostatic actuation with permanent magnet actuation in MEMS systems could help save battery life and increases lifespan. High performance micro-scale systems, such as micro-generators, micro-switches, micro-pumps, micro-acoustic speakers, micro-sensors and micro-energy harvesters, are becoming more interesting for many critical defense and industrial applications. Permanent micro-sized magnet material is an enabling technology for MEMS or MAGMAS. Attend this session to hear some of the current or future unique applications and research of permanent magnets supporting micro electro-mechanical systems.

*Peter C. Dent, VP of Business Development
Electron Energy Corp.*



Developing a New Transformer

Learn how using wire for the magnetic component of transformers and coils lessens constraints. Advantages, problems, other problems and associated problems led to new magnetic material testing approaches and even to a new analog of transformer action. Efforts that begun in late 1997 still proceed. Patents and patent applications are ongoing, prototypes are being built. Partners, collaborators and consultants are at work. The geometry of new transformers is a part of this story. The search for suitable magnetic material is another part. Attend this session to hear about this adventure from early conception and crude prototypes.

Dr. Harrie Buswell, CEO • Buswell Energy LLC

12:00 PM NETWORKING LUNCHEON

1:00 PM

Magnetization and Measurement of PM Motors

An increasing number of motors are equipped with permanent magnets. The range goes from small motors with some mm up to large motors with some meters in diameter. The number of poles reaches from 2 to 70 or more. Nowadays, most motors use NdFeB magnets instead of Ferrite magnets. Rotors can be laminated or solid. These facts entail special requirements for the magnetizing equipment, which are pointed out as well as the significance of different measuring methods.

*Hartmut Pagel, International Sales Director
MAGSYS magnet systeme GmbH*



Electromagnetic Actuated Valve Technology

Passenger Car Systems develops innovative electromagnetic actuated valves. Covering low pressure and high pressure applications, the electromagnetic actuating technology is based on proportional and clamping techniques. The presentation describes the force and stroke behavior of the magnets including the magnetic force influence to the valve characteristics. In combination with different ball seat valves designs, the described actuators can be used to control or adjust high pressure applications up to 3,000 bar for common rail diesel systems or for metering an exact volume in the area of low pressure applications.

*Bernd Gundelsweiler, Business Unit Manager
Kendrion Binder Magnete GmbH, Passenger Car Systems*



1:40 PM

Rare Earth Myths Debunked

The growing interest in rare earth (RE) materials has spawned serious misconceptions China's role as RE supplier to the world. A technically-ignorant media, special-interest groups, and a badly misinformed public continue to sensationalize myths about RE scarcity, reserve

accessibility, future availability of RE products and China's role. This presentation will debunk four myths about the RE "crisis". 1.) Rare earths are rare. 2.) China controls world supply. 3.) Quotas threaten RE products supply to US. 4.) Rare earth prices are unstable. Every materials engineer, purchaser, project manager and chief executive needs to re-educate themselves on the fundamentals of RE. If their organization does business or plans to do business with Chinese RE magnet suppliers, they need to secure the real facts about RE on their design, costing, procurement and supply stages.

John Ebert, Business Manager • Yunsheng USA, Inc.

Soft Magnetic Cobalt-Iron Alloys for High-Performance Motors and Actuators

Cobalt-iron (CoFe) alloys with a nominal composition of 49 percent Co, 49 percent Fe and 2 percent V exhibit the highest magnetic saturation induction of all commercially available soft magnetic materials. Therefore they are a common choice for high-performance motors and generators with the highest power density. Learn about a new production technology that was developed, which results in a laminated stack showing extremely low core losses and a very high flux density over the whole cross section of a stack. Further, hear about two new soft magnetic alloys based on CoFe. Both materials are tailored for fast switching actuators because of their high electrical resistivity. Due to the Co content, the saturation induction is very high, which directly yields to high magnetic force. These materials are very attractive for applications like magnetic valves for diesel or gasoline injection.

*Joachim Gerster, Director of R&D
Vacuumschmelze GmbH und Co. KG*



2:20 PM

Coercive Force Improvement for Nd-Fe-B Sintered Magnets By Dy Diffusion Process

For automotive applications, Dysprosium (Dy) is inevitably used in NdFeB sintered magnets due to increase intrinsic coercive force (HcJ). But Dy is produced from limited resources and strictly depends on China. Recently this rare earth resource problem is also one of the important issues for NdFeB sintered magnets industries. Recently very small amount of additives such as Cu, Ag and Au, which has strongly affected the coercive force of NdFeB sintered magnets is studied and these elements exist in grain boundaries where are expected to determine coercive force of this magnet. Based on this concept, when Dy is strictly concentrated in grain boundaries of the main phase grains, high HcJ is achieved in NdFeB sintered magnets. Based on these facts, coercive force improvement and the reduction of Dy usage for NdFeB sintered magnets by Dy diffusion process will be discussed.

*Dr. Yutaka Matsuura, Chief Engineer • NEOMAX Company
Hitachi Metals Co., Ltd.*

ANOFOL - Coils from Anodized Aluminium, the Alternative To Copper

New challenges show the restrictions of copper coils in different kind of applications every day. Needs in aerospace, automotive, nuclear environments, separation techniques require high accuracy, low weight, optimized filling factor for optimized solutions at temperatures up to 400°C. Coils from ANOFOL are an innovative answer in many different applications. Strips from aluminium, covered with a thin oxide layer, allow to fill almost 100 percent of the available space with current carrying material. Strong magnetic fields are feasible with minimum external cooling periphery. High accuracy ANOFOL coils of all sizes are replacing copper coils in positioning systems, controllers and prime movers. Precise, light and powerful coils from ANOFOL probably answer your open technical questions.



Dr. Oliver Zimmermann, Physicist • STEINERT GmbH

3:00 PM NETWORKING BREAK

3:10 PM KENDRION PRODUCT DEMO IN EXHIBIT HALL

3:30 PM

The USMMA's "Manufacturing First" Proposal for Sintered NdFeB Magnets

The topic of rare earths has seen some impressive coverage in the media recently. This is true for news outlets all over the world. However, much of the coverage has concerned the status of mining rare earth oxides. As the magnet industry knows, the rare earth story certainly doesn't stop with oxides. That's why the USMMA is a strong proponent of a "Manufacturing First" strategy. By establishing the ability to manufacture rare earth end products, such as sintered neo magnets, the Manufacturing First strategy creates downstream demand for rare earth elements. This presentation will explore why this strategy is critical for US manufacturing, and how it can have a positive impact on a wide swath of the US economy.



Ed Richardson, President • USMMA

Fabrication of Ferrites Nanoparticles by Efficient One Step Carbon Combustion Synthesis

This presentation will cover the latest advancements in the applications, technology and economic development for ferrites materials. We developed a novel synthesis method of complex oxides named Carbon Combustion Synthesis of Oxides (CCSO) for economic production of magnetic ferrites. It produces ferrites much faster (order of minutes) than the common calcination processes (order of hours) without any external power consumption and using rather inexpensive raw materials. Based on the research we filed a patent application "Carbon Combustion Synthesis of Oxides", 2006, #US2006/0097419A1. We look forward to working on research and development to broaden the reach of our technology to the widest possible base of potential partners, investors and the licensing and transfer of CCSO technology for industry to launch new hard and soft magnetic products.

Karen Martirosyan, Associate Professor

University of Texas at Brownsville, Dept. of Physics and Astronomy

4:15 PM

Understanding China's Magnet Material Supply Channels: Past, Present and Future

Hear about the different stages of supply chain development leading up to the current status and structures of the magnet material supply chain from China into North America. The Chinese magnet industry is now developing the third major supply chain structure since it entered the North American magnet industry in major force more than a decade ago. In the beginning Chinese magnet producers sold their products through domestic magnet manufacturers and distributors here in North America. Before long, the largest North American and European magnet material users had sent their own people to be on the ground in China developing a direct supplier relationships. Today, some of these same Chinese magnet companies are developing the distributing logistics and customer technical and sales support needed to supply most magnet customers here in North America. We will discuss the detail of these three different supply chain structures including the cost break down and cost implications for each. Our intent is to provide insight into the different options available today and to provide information that will assist magnet users is designing the best suited supply chain structure for their companies.



Darrell Adams, Director of Sales, North America

Hangzhou Permanent Magnet Group (HPMG)

5:00 PM COCKTAIL RECEPTION

Wednesday, March 2nd

7:30 AM REGISTRATION & BREAKFAST

8:10 AM KEYNOTE PRESENTATION

Rare Earth Resurgence: Re-Establishing a US Mine-to-Magnets Manufacturing Supply Chain

Hear an update on Molycorp's groundbreaking plan to deploy a complete rare earth "mine-to-magnets" manufacturing supply chain in the US by the end of 2012, and expand its current 3,000 tonnes/year production to 20,000 tonnes per year. In addition to producing custom neodymium-iron-boron (NdFeB) magnets, Molycorp will produce commercial quantities of nine rare earths, and will manufacture high-purity rare earth oxides, metals and alloys. Smith will describe how Molycorp's new, state-of-the-art processing facility will dramatically shrink the environmental footprint of rare earth production while also positioning the Company to be the world's lowest-cost producer.

Mark A. Smith, PE, Chief Executive Officer • Molycorp, Inc.



9:15 AM FEATURED PRESENTATION

Clean Energy Demand for Rare Earth Permanent Magnets

The growth in sales of personal electronic devices, such as PCs and iPods, has largely driven the enviable growth of the Rare Earth (RE) industry since the 1980s. Going forward, the demand for Clean Energy, especially wind, will dwarf these traditional markets and drive the creation whole new global supply chains - a complete reversal of the "offshoring" that helped create the Chinese RE monopoly in the first place. A case will be made that global stakeholders are not prepared for the impact of Clean Energy Demand for rare earth permanent magnets beyond 2012.

Keith A. Delaney, Executive Director • REITA



10:00 AM EXHIBIT HALL OPENS / NETWORKING BREAK

10:45 AM

The Ultimate Magnetometer: Overview of NMR Technology

There are a dozen physical effects commonly exploited to measure magnetic flux density. Amongst these, Nuclear Magnetic Resonance (NMR) holds a privileged position: precision approaching the parts per billion, perfect linearity and no dependence on external factors such as temperature, truly the ultimate magnetometer. In some industries, such as MRI magnet production, these instruments are essential every-day tools; but in most of the magnetics industry, they are virtually unknown. This technology survey will cover the principles of operation, the benefits, the limitations and recent developments.

*Philip Keller, Marketing & Product Management
Metrolab Technology SA*

Injection Moulded Magnets for Sensor Systems

One major advantage of injection moulded magnets is the high variety of field distributions, which can be realized. This is of major importance for sensor applications that often demand specific spatial distributions of magnetic field components that need to be tailored for the sensor in use. Such requirements can be met adequately either by pole oriented injection moulded magnets being directly magnetized in the mold or by Rare Earth magnets with artificial polarization patterns originated by an external pulse magnetizing process. Besides an overview of the manufacturing process of injection moulded magnets these design methods are explained by practical examples with comparisons of predicted to measured results.

Thomas Schliesch, Head of R&D • MAX BAERMANN GMBH



11:25 AM

Recent Improvements in the Simulation of Quench in Low and High Temperature Superconducting Magnets

The Integrated Modelling Package for Designing Advanced HTS Materials Applications (IMDAH-MA) project was a collaboration between Oxford Instruments Nanoscience, Southampton University Cryogenics Institute and Cobham Technical Services Vector Fields Software, partly supported by the UK government. Its aim was to improve software design tools for superconducting magnets and systems including HTS materials. Improvements made to finite element based quench simulation by the introduction of "Mosaic" meshing are presented, showing better than three fold improvement in speed and more accurate representation of the quench wave-front. Use of an advanced scripting language to integrate proprietary design software with the quench simulation, representing material properties for LTS/HTS and the protection circuitry are also discussed.

*Chris Riley, Technology Manager
Cobham Technical Services - Vector Fields Software*



Bit-Patterned Magnetic Arrays for Magnetic Data Storage Applications

Learn about recording physics, design considerations and fabrication of bit-patterned magnetic medium for next generation data storage systems. (Co/Pd)N magnetic multilayers are evaluated as candidates for bit-patterned medium recording layer materials for their high and easily tunable magnetic anisotropy. Optimized patterned multilayers used in this study had coercivities in excess of 12-14kOe. Bit patterning was accomplished using ion-beam proximity printing, a high-throughput direct write lithography where a large array of ion beamlets shaped by a stencil mask is used to write an arbitrary device pattern. It is found that the nature of magnetization reversal strongly depends on bit edge imperfections and is likely to contribute to switching field distribution.

Dmitri Litvinov, Professor of ECE • University of Houston

12:00 PM NETWORKING LUNCHEON

1:00 PM

Efficient Machine Design Through Multiple Configurations in Analysis

A finite element-based software tool, EMS, offering a high degree of versatility in streamlining the design and analysis of magnetic devices, is presented. This package employs a highly accurate field-based simulation technique inside a CAD environment, SolidWorks, rendering analysis of a wide variety of devices readily accessible to practicing engineers. Some devices, including a coupling device, some motors, and transformers, are selected to illustrate this design solution. Features such as the use of multiple configurations and studies, to evaluate design variations, or to carry out sensitivity analysis, as well as coupling the magnetic and thermal analyses are illustrated using the devices.

Hussam Maleh, Application Specialist • ElectroMagneticWorks, Inc.



Correlated Magnetics: A Fundamental Discovery Offers Improved Machines and New Applications

Correlated Magnetics Research (CMR) has made several fundamental innovations and inventions in the area of magnetics. These patented inventions include the ability to custom-program magnet force curves, which effectively breaks the dipole paradigm of simple attract and repel of conventional magnets. CMR has magnets that hover and do all sorts of never-before-seen behaviors.

With these capabilities, it is possible to design magnets optimized for an application versus the need to design applications - like motors, generators, medical devices, actuators and so forth - around the fixed behavior of conventional magnets. Simply said: where magnets have always been a constant, they are now a variable. Attend this presentation to hear about the potential practical applications will transform the competitive landscape for companies in many fields.

*Stephen Straus, VP of Commercialization and Strategy
Correlated Magnetics Research LLC*



1:40 PM

Semi-Hard Magnets: The Important Role of Materials with Intermediate Coercivity

Much of the current focus of industry is on high coercivity permanent magnets and very low coercivity soft magnetic steels. A less glamorous, but no less important set of materials provide modest coercivity for applications such as brakes, tensioners and hysteresis coupled drives. Most of the semi-hard materials are malleable and capable of being machined with standard metal working tools. They can also be drawn and formed into wire, rods, bars and other shapes. We'll compare properties for a number of these materials and examine some of their more common uses.

*Steve Constantinides, Director of Technology
Arnold Magnetic Technologies Corp.*

2:15 PM CONFERENCE CONCLUSION

Supporting Organizations





CO-LOCATED WITH



IF YOU ARE INVOLVED IN THE MOTOR, DRIVE OR AUTOMATION INDUSTRIES OR IF YOUR PRODUCTS AND SYSTEMS USE THESE TECHNOLOGIES, THIS IS A MUST ATTEND EVENT.

Motor, Drive & Automation Systems 2011, an international conference highlighting the latest developments and technologies in the motor, drive, automation and power electronics industries, will be held March 1-2 in San Antonio, TX, and co-located with MAGNETICS 2011.

This annual conference will feature more than 20 presentations on new motors, drives & automation systems, system design and integration for optimum performance, power systems efficiency & power electronics technology, new components & materials, advancements in electronics and control, testing systems and techniques. Sessions will also cover market and financial aspects such as demand, supply and pricing outlook for motors, drives, controls, materials and components as they relate to total system economics.

Attendees to either event will have access to the combined exhibit halls and networking breaks, receptions and luncheons. And for a nominal "conference upgrade" fee, attendees will have access to both conference programs.

For more information or to see the conference program visit www.e-driveonline.com.