11th Annual Minnesota Technical Symposium March 28th

Medtronic World Headquarters, Fridley, MN

Fe$_{16}$N$_2$ called the Holy Grail of Magnets

Magnetic materials are indispensable for IT, biomed, electric, electronic, automobile industries, and renewable energy. A wind turbine demands 500 pounds of state-of-art NdFeB magnet, which was discovered during the 1980s. Unfortunately, its energy product hasn’t improved since early 1990s. In most applications, an increase in the magnetic energy density of magnetic materials immediately increases the efficiency of the whole device and makes it smaller and lighter. This lecture will cover the research efforts of Dr. Wang’s group in the development of a high performance non-rare earth magnet. The group has reported groundbreaking theory and evidence of, and produced samples of, both giant saturation magnetization and large magnetic anisotropy of Fe$_{16}$N$_2$.

Revolution in Power Generators

Core Innovation and Core Motion have developed a unique and proprietary platform of cost-effective permanent magnet motor and generator products, offering unprecedented energy density, and clear advantages over competing technologies including:

- 20-70% lower cost to manufacture vs. traditional machines
- 1/3 the weight vs. traditional wire wound induction motor/generators
- Improved energy efficiency across a variable speed range
- Less than 6 weeks from specification than 6 weeks from specification-to-design
- 10-30% lower system cost vs. traditional permanent magnet motors

This innovative approach to power generation will be presented.

Schedule of Events:

5:00-6:00  Registration, social with refreshments. $30.00 per person.
6:00-7:00  Dinner (followed by move into auditorium)
7:00-7:15  Welcome message, introductions
8:15-9:00  Speaker 2

Directions:

Medtronic World Headquarters Campus is conveniently located in the northwest quadrant of 694 and Highway 65 in Fridley, Minnesota. Exit north on Highway 65, turn west on Medtronic Parkway.

710 Medtronic Parkway
Fridley, MN  55432

Park in the ramp, check-in with security, then check-in with your association (ASM).

RSVP by March 22nd at www.mnasm.org. Seating is limited. Reservations cannot be refunded after MARCH 22nd.
Invitation to Help

ASM needs your help with the 2013 MN Chapter ASM Materials Camp, June 11 - 14 (Tuesday - Friday). We’re looking for **volunteers** and **monetary donations**. If you are interested in volunteering for the camp here are some examples of how you can help:

- **Be a mentor**: Lead a group of 5-6 students in a failure analysis or reverse engineering project and help them understand the materials engineering concepts they will learn throughout the week. If this is your first camp you can be paired with an experienced mentor so they can show you the ropes. Time commitment: all four days of the camp, approximately 7:30 a.m. – 5 p.m., with one later evening (7 p.m.). **We are in great need of full time mentors this year!**

- **Be a presenter**: Present on a materials engineering topic. Topics usually covered are corrosion, mechanical testing, thermal properties of materials, fracture analysis, microscopy, your career in Material Science, or you can present on a topic you suggest. Feel free to pair up with another person! Time commitment: approximately half a day (morning or afternoon).

- **Help with a monetary donation**: Camp T-shirts $500; Breakfast for one day $300; Lunch at Student Union $450; Thursday Dinner at Annie’s Parlour $650-700; Safety Glasses $275; Bus service for Thursday tours $525; Student notebooks and pens $200-400; NACE Corrosion Kits (cKits) $1,500; Lanyards/tools etc. $300-$400; Memory Sticks for Students $45; Misc. handouts. If you are interested in giving a monetary donation of any amount, please contact Kurt Schenk at schenk@mee-inc.com.

- **Help with planning**: There are a lot of logistics that go into the camp, and you can help out with the planning. Time commitment: One evening meeting a month. Our meetings are usually held on the first Tuesday of the month.

Please contact Margaret Bush at margaret.bush@gmail.com if you have any questions or are interested in helping out. Thank you for considering donating your time, talents, and items to the MN ASM Materials Camp. For more information about the camp, please visit www.mnasm.org/camp.

Volunteer to Serve Your Chapter

Interested in having a part in planning what your chapter does for the next program year (September through May)? Join the great group of volunteers who serve as directors, officers, or committee chairpersons! If interested, contact one of the current board members or call the chapter office at 763-413-7935.

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**SUSTAINING MEMBERS**

[Logos of sponsoring members]
Past Chair Night April 17th

Wednesday, April 18th marks the annual gathering of ASM Past Chairpersons at the monthly meeting at the Green Mill in Plymouth, MN. More information will be in next month’s newsletter.

ASM Membership Milestones

Congratulations to the following members for reaching ASM membership milestones. Recognition certificates will be available at the April 17th meeting.

Members since 2008 (5 Years)
  Chris Kerr
  Dan Ruffelle
  Matt Heidner
  Jesse Anderson
  Matt Gorrell
  Tom Mooney
  Sastry Varanasi

Members since 2008 (5 Years)
  Eric Schultz
  Scott Terry, PhD
  Tyler Olson
  Christopher Boldt
  Karen Bennett
  Ryan Stromberg
  Bruce Peakcock

Members since 1998 (15 Years)
  Dr. Brian Berg
  Dr. Jaroslaw Haftek
  Jeff Helgerson
  John Murnane

Members since 1998 (15 Years)
  Sustaining - Winona State University

Members since 1988 (25 Years)
  Dr. Joel DeKock
  Kevin Boulav
  James Hallquist
  Jon Swensen
  Warren Solom

Life Members
  Dale Roberts (1970)
  Dr. Ronald Bennett (1967)
  John Warinsky (1979)
  David Tokle (1971)
  Herb Fick (1989)
  Dennis Stephens, PhD, Retired (1978)

Congratulations to our ASM Members!

SUSTAINING MEMBERS
### 2012-2013 MN Chapter Program Schedule

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<tr>
<th>Meeting Date</th>
<th>Topic</th>
<th>Speaker</th>
<th>Meeting Location</th>
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<tbody>
<tr>
<td>Wednesday October 24th</td>
<td>Student - Industry Networking Event</td>
<td>Professor Bharat Jalan</td>
<td>U of M Minneapolis, MN</td>
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<tr>
<td>Wednesday December 5th</td>
<td>Holiday Party</td>
<td>Sovereign Estates Winery</td>
<td>Green Mill Plymouth, MN</td>
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<tr>
<td>Wednesday January 16th</td>
<td>“Exotic and Unusual Testing Applications”</td>
<td>Erik Schwarzkopf MTS</td>
<td>Green Mill Plymouth, MN</td>
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<td>Tuesday February 26th</td>
<td>“Materials for Medical Devices” Annual Full Day Seminar</td>
<td>Various Speakers / Professional Dev. Hours Cert. Available (5)</td>
<td>Hennepin Technical College Brooklyn Park, MN</td>
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<td>Wednesday April 17th</td>
<td>Title TBD Past Chair Night / Scholarships / Awards</td>
<td>Luc Pouliot</td>
<td>Green Mill Plymouth, MN</td>
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<td>Wednesday May 15th</td>
<td>TBD</td>
<td>TBD</td>
<td>Green Mill Plymouth, MN</td>
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