

## What's it all about?

### For Students:

It's about being part of an academic "team" that has access to mentors and subject matter experts. It's about gaining hands-on, industry-based experience.

### For Parents:

It's about providing your student with a strong education in math, science, English, technology, and communication. It's about a tuition free program that provides real-life practical experience within a manufacturing venue. The class of 2011 will be MTA's 15th graduating class, joining others who have launched themselves successfully in their careers.

### For Counselors and Teachers:

It's about a TBAISD program that does not take away any of your school's student funding. Your students can earn high school academic credits through an integrated engineering and manufacturing curriculum that could lead to postsecondary education/training or immediate employment.

### For Employers:

It's about helping develop a work force able to compete in the global economy. Your support through job shadowing, mentoring, and other opportunities help build a strong relationship with the community and its people.

**If you have any questions about MTA please contact us!**

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**This newsletter is provided by the MTA Guidance Board**

## Now recruiting high school SOPHOMORES and JUNIORS

**Are you interested in engineering, robotics, management, product design or other technology-related professions?**

**Then don't miss our MTA Student/Parent INFORMATION NIGHTS!**

**When: Tuesday, January 26**

**Tuesday, February 9; Wednesday, February 24**

**Time: 6:30 to 8:00 p.m.**

**Where:** MTA is located in the M-TEC building on the curve at 2600 Aero Park Drive: off of Parsons, by Three Mile Rd.

The Manufacturing Technology Academy (MTA) is a **tuition free program** sponsored by Traverse Bay Area Intermediate School District, the Career-Tech Center and area businesses and is open to eligible students from GRAND TRAVERSE, LEELANAU, BENZIE, ANTRIM AND KALKASKA COUNTIES.

**Learn about our rigorous academic and technical curricula, tour our facilities, talk with business partners, students, and teachers.**

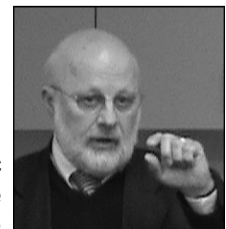
## Virginia Tech Professor Speaks on Intelligent Materials

On November 23, 2009 MTA technical opportunities and students, staff and guests hosted experiences for careers.

Daniel J. Inman, Ph.D. Professor & Director of the Department of Mechanical Engineering, Center for Intelligent Material Systems & Structures at Virginia Polytechnic Institute & State University (Virginia Tech). Inman indicated that smart materials enable unique solutions to many aerospace and mechanical related problems.

He demonstrated several interesting problems that can be solved using piezoelectric devices. Some examples are

Dr. Inman is an internationally known **Strength of Materials Expert** who lectured on the topic "**Intelligent Materials**". The lecture is part of the ongoing exposure of MTA Students to morphing airplane wings which



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**MTA Mission Statement:** To provide a learning environment which motivates and enables students to acquire world-class manufacturing and engineering skills while positioning them to compete and excel in the global market.



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## You might enjoy a career related to manufacturing and engineering if:

- **you are interested in how things work**
  - **you are interested in math, science, and technology**
  - **you are creative and like to put things together**
  - **you like working with people in teams**

### MTA graduates go many places:

**MichiganTech.**



MICHIGAN STATE  
UNIVERSITY



KETTERING  
UNIVERSITY



**MTA graduates go many places to engage in careers from engineering, biomedical, teaching and beyond!**

*(Continued from page 1) Intelligent Materials*

change their shape for different flight styles; Structural Health Monitoring (SHM) which affords the ability to examine structures for faults while they are in service, such as bridges, or a host of other items; and energy harvesting.

An application of energy harvesting replaces battery-powered GPS bear collars (with a life expectancy of only one year) with a collar that utilizes the energy generated by the motion of the bear. All of these disciplines involve combining mechanical with electrical fields through the piezoelectric constitutive laws.

The morphing airplane wings that Dr. Inman discussed used piezoelectric materials to eliminate the need for flaps and their associated cable and pulley systems for controlling small drone aircraft. Instead, wings constructed of the materials he's working on will respond to the emission of an electric field traveling along the surface by contracting or expanding, thus changing the wing's shape.

Dr. Inman stated that there are many career opportunities in a number of industries including aerospace, materials, and automotive. These firms need individuals with degrees from bachelors through Ph. D. He indicated he gets at least one call a week from companies looking for qualified individuals.

**Please help us spread the news about the MTA!  
After you have finished reading this newsletter, share it with other parents of high school underclass students and/or local employers.**