Prof. Dean M. Aslam, Electrical and Computer Engineering, Michigan State University, *aslam@msu.edu*

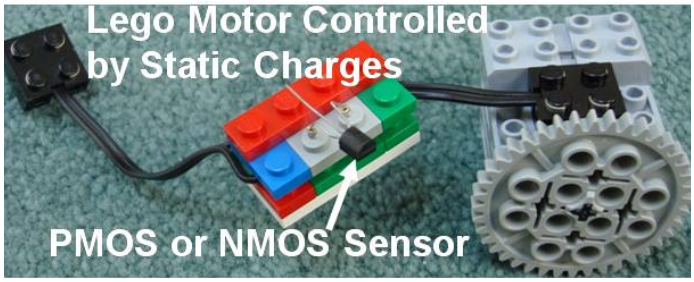
K-12 Summer Camp 2008 www.egr.msu.edu/~aslam

ROBOTICS & NANOTECHNOLOGY

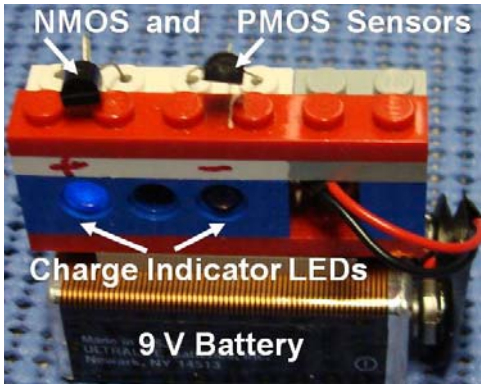
MICHIGAN STATE UNIVERSITY

Innovative Micro and Nano Technology Short Courses for K – 12 offered jointly by MSU, NSF WIMS ERC and Nanobrick

UNIQUE LEARNING:



"A second grader rubs a plastic spoon on his/her dry hair and uses the negative charge created on it to turn on a computer switch (a PMOS device) embedded in a programmable robot." What a fun way to start and stop a robot and an example of sparking children's interest in technology-assisted learning.



In an innovative K – Ph.D. education and research program, developed at MSU, graduate and undergraduate students mentor K-12 students in hands-on Technology Assisted Science, Engineering and Mathematics (TASEM). The TASEM environment introduces micro and nano technologies to children in a very interesting and exciting manner.

DURATION AND COST:

In 8-hour (spread over 4 days) short-courses (sessions) designed for all levels of K-12, the children (typically 2 per group) learn basics, do one technology-assisted experiment, work on a project and present it to their parents and teachers.

A total of 6 **short courses (SC) or sessions will be offered in June and July 2008. Each SC is open to all K-12 levels and costs $118.00 per student per SC. Returning children will continue at a higher level. A child registered for multiple SC will be moved to higher level after each course. All activities, including nanotechnology, static charges, GPS, TABI, will involve programmable robots.**

WHAT IS NEW IN 2008?

- ☺ **Static charges and charge generators: Lego-based robotic static-charge generators (toy Van de Graaf generators) used to explain nano concepts, computer switches, logic gates, sensors and *microsystems.* *A microsystem contains a microcontroller, sensors, actuators, software and battery; all integrated into one system. Mindstorm's Lego Robotics Invention System (RIS) is an example of a microsystem.***
- ☺ **Unique link between nanotechnology and static charges: Lego-based learning modules use a top-down approach to explain nanotechnology using fun experiments.**

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HOW TO REGISTER?

1 **Select the area of learning:** ***Multiple means no restriction***

Learning Area	Recommended Grade Level	Available Stations	Max. # of Groups per SC	Max. # of Children per Area
Programmable Robots, RCX	K - 12	Multiple	Multiple	Multiple
Programmable Robots, NXT	6 - 12	Multiple	Multiple	Multiple
Microcontroller Programing	8 - 12	4	4	8
Nanotechnology Experiments	6 - 12	2	2	4
Static Charges; Fun Experiments	K - 12	4	4	8
High Definition Video; shooting/editing	7 – 12	1	1	2

2 **Select the SC # and date:**

The Short Courses (SC) 1, 3 and 5 are offered in the morning from 10:00 a.m. to 12:00 noon (Monday-Thursday). The SC # 2, 4 and 6 are offered in the afternoon from 1:00 to 3:00 p.m. (Monday-Thursday).

SC #	1	2	3	4	5	6
Starts at	10:00 a.m.	1:00 p.m.	10:00 a.m.	1:00 p.m.	10:00 a.m.	1:00 p.m.
Dates	6/16 - 6/19		6/23 - 6/26		6/30 - 7/3	
Location	225 Natural Resources					
Deadline	Until filled, max. # per SC is 22 based on first-come-first-served, see website					

3 ***Send Form and Check:***

Please mail the registration form below and a check ($118.00 per student) made out to 'Michigan State University', with the memo line filled in to Dr. Aslam:

Dr. Dean M. Aslam,
Electrical and Computer Engineering, 2120 Engineering Bldg. Michigan State University, E. Lansing, MI 48824

For further information, contact Mrs. Zahida Aslam at zahaslam@hotmail.com ***or Dean Aslam at*** aslam@msu.edu

For latest updates click on K-PhD at Dr. Aslam's website: www.egr.msu.edu/~aslam

This program is partly supported by the NSF ERC for Wireless Integrated Micro-Systems (WIMS), directed by Prof. Ken Wise, and by Nanobrick. The WIMS center (2000 – 2010) was jointly awarded to U of Michigan, Michigan State U and Michigan Techn. U: www.wimserc.org

FOR CAMPUS MAPS GO TO:
http://www.msu.edu/maps/index.html

Registration Form

Student Name: ..... Grade:.....Short Course #.....
Student Name: ..... Grade:.....Short Course #.....
Study Area: .....Previously Attended a SC? YES/NO[1]
Name of parents: .....Phone number:.....
Email Address:.....Special Requests, Food Allergies: .....

1 If yes, tell us what have you done so far in prior Camps with us or elsewhere.