Announcing the Final Examination of Chaoming Wang for the degree of Master of Science

Time & Location: July 9, 2010 at 2:30 PM in PVL 475
Title: Thermal Detection of Biomarkers Using Phase Change Nanoparticles

Most of existing techniques cannot be used to detect molecular biomarkers (i.e., protein and DNA) contained in complex body fluids due to issues such as enzyme inhibition or signal interference. This thesis describes a nanoparticle-based thermal detection method for the highly sensitive detections of multiple DNA biomarkers or proteins contained in different type of fluids such as buffer solution, cell lysate and milk by using solid-liquid phase change nanoparticles as thermal barcodes. The use of thermal nanoparticles allows detection of multiple low concentration DNAs or proteins in a complex fluid such as cell lysate regardless of the color, salt concentration, and conductivity of the sample.

Major: Materials Science and Engineering

Educational Career:
Bachelor's of Chemical Engineering and Technology, BS, 2004, Hubei University
Master's of Materials Chemistry, MS, 2007, Chinese Academy of Sciences

Committee in Charge:
Ming Su, Chair, Mechanical, Materials & Aerospace Engineering
Kevin Coffey, Mechanical, Materials & Aerospace Engineering
Karl X. Chai, Molecular Biology and Microbiology
Patrick K. Schelling, Physics

Approved for distribution by Ming Su, Committee Chair, on June 23, 2010.

The public is welcome to attend.