

Marx Mbonye

Department of Electrical and
Computer Engineering
Rice University
6100 main street MS 132
Houston, Tx 77005

Office phone: 713 348 4271
Rm no: A216
Fax: 713 348 5686
Email: mbonye@rice.edu
Web addr: www.owl.net.rice.edu/~mbonye

EDUCATION

- B.S. Physics, Cum Laude, Spring 2003, GPA: 3.48
Southern University and A&M College
Baton Rouge, Louisiana
- M.S. Physics, Spring 2005, GPA: 3.73
Southern University and A&M College
- Ph.D., Applied Physics, In progress
Rice University, Houston, Tx

PUBLICATIONS

- *A Search for Prompt Microwave Emission from Gamma-Ray Bursts Using Archival Cosmic Microwave Background Explorer (COBE) Datasets*, M. Mbonye, Masters Thesis, May 2005, Southern University and A&M College
- *A Search for Prompt Microwave Emission from Gamma-Ray Bursts Using Archival Cosmic Microwave Background Explorer(COBE) Datasets and Wilkinson Microwave Anisotropy Probe (WMAP) Datasets*, M. Mbonye, J. G. Stacy, P. D. Jackson, C. Winkler, 2004 in Proc of the 8th High Energy Astrophysics Division (HEAD) Meeting, in New Orleans, LA (September 2004)
- *Dielectric, Piezoelectric and Magnetic Properties of Ferroelectromagnet $Pb(Fe_{1/3}Nb_{2/3})O_3(PFN)$ Ceramics*, Wang, Jin. T, Mbonye, Marx K, Zhang, Cheng, in International Journal of Modern Physics B, Volume 17, Issue 18n2, pp. 3732-3737 (2003).

CONFERENCES & AWARDS

- 8th AAS High Energy Astrophysics conference, Sept 2004, New Orleans, LA
- 1st place, oral presentation competition at the 27th annual National Association for Equal Opportunity in Higher Education (NAFEO), 2002
- 2nd Place, Oral presentation competition, Louis Stokes-Louisiana alliance for minority Participation conference, in Nov 2003
- Southern University System Foundation Scholarship, 2002- 2003
- Physics Department scholarship, 2002-2003

MEMBERSHIPS

- Sigma Pi Sigma Honor Society
- American Physical Society
- former member, Southern Univ. chapter of Society of Physics Students

GRADUATE COURSES

- Statistical Mechanics, Text- Kerson Huang, Classical Electrodynamics, Text- Jackson, Classical Mechanics- Goldstein, Mathematical Physics – Arfken & Weber, Quantum Mechanics- Sakurai

LANGUAGES

- C, C++, Fortran, IDL, Matlab, Labview, VAX/VMS

RESEARCH EXPERIENCE

- *Spring 2006-Present*, Currently working with Dan Mittleman's group. My research involves studying the properties of various materials using Terahertz radiation.
- *Spring 2003-Spring 2005*, *Master Thesis Project* – My thesis work (at Southern) involved a “Search for Prompt Microwave Emission from Gamma-Ray Bursts Using Archival COBE Datasets”. The prompt multi-wavelength burst emission presumed to arise from reverse shocks in the burst ejecta, provides insight into burst physics and the physical environments in which bursts occur. The thesis project established a limit on prompt microwave emission using a 3 year sample of data. I also investigated how the increased sensitivity and angular resolution of the WMAP radiometers compared to the COBE/DMR radiometers led to a factor of ~10,000 improvement in overall point-source sensitivity. Such limits approach the signal levels predicted in the microwave band for the peak prompt emission arising from reverse shocks in GRBs.
- *Fall 2004-Spring 2005*, *Louisiana Aerospace Catalyst Experience for Students (LaACES)*- I participated in the ACES project at Southern University. Our team (of about 10 people) designed, fabricated, developed and flew a scientific balloon experiment to measure the efficiency of solar cells as a function of altitude. In this venture I gained practical experience with sensors, electronics and “spacecraft” systems.
- *Summer 2002 & Summer 2003*, *NASA Goddard Space Flight Center* - I worked at NASA-Goddard Space Flight Center in Greenbelt, MD. While there I participated in the design and testing of a grazing incidence interferometer. This testing was first done in an open room environment using laser light and afterward in a 80m vacuum pipe using X-rays. A somewhat similar design of this interferometer will be the primary instrument for a NASA mission called Micro-Arc second X-ray Imaging Mission (MAXIM). I returned to work with the MAXIM mission group in summer 2003, in writing a program that would calculate with precision the path length difference between the two channels of the X-ray interferometer.
- *Summer 2001*, *European National Lab For Nuclear Research (CERN), Geneva Switzerland* - While there I worked with the ATLAS Muon X -ray tomograph group. I wrote a C++ program to read files output by a grid fit program. The output of my program was a table in HTML format. The program I wrote enabled the group I worked with to display their experimental results on the web.
- *Fall 2001 to Spring 2002*, *Electronic Materials and Devices Research Laboratory*- During this time I did research at the Electronic Materials and Devices Research Laboratory (EMDRL) in the Physics department at Southern University. My research involved investigating the Dielectric and Ferro-electric properties of Ferro electromagnet $\text{Pb}(\text{Fe}_{1/3}\text{Nb}_{2/3})\text{O}_3$. In March 2002, I attended the 27th annual National Association for Equal Opportunity in Higher Education (NAFEO) conference. I presented this research and won first place in the Physics oral presentations. I was awarded a gateway computer.
- *Summer 2000*, *REU at University Of Michigan* - I participated in an REU program at the University of Michigan, Ann Arbor. My project involved repairing problematic Time to Digital Conversion (TDC) circuit boards that were utilized in the Collider Detector at Fermi lab (CDF). The Collider Detector at Fermi lab is known for establishing the existence of the top quark.
- Available upon request

REFERENCES