

## Thesis Mentoring / Supervision

### A. PhD:

1. Advising Mr Jason Gilchrist: Integration of Diamond Like Carbon and Polycrystalline Diamond in silicon technologies for integrated circuit, nanoscale optoelectronic, and thermal applications.
2. Advising Mr Kurt Garrett: Use of Diamond Like Carbon and Polycrystalline Diamond for modification and characterization of DNA using nano-optical probes.
3. Mentored Mr Nathan Stoddard, In-situ studies of irradiation induced defects in a HRTEM, NCSU, thesis defense on Aug. 12, 2004 at NCSU.<sup>1</sup>
4. Mentored Mr Renuha Zhang at NCSU, on Modeling of defect growth in crystalline silicon.
5. Mentored Mr Tsumo Sasaki, Modeling and computer simulation of defect growth in oxygen-rich ultra pure silicon, part of his PhD thesis.
6. Mentored K. Bae for PhD thesis on Modeling OSF ring defect in ultra high purity silicon, NCSU, PhD, NCSU, Aug. 1998.
7. Advised PhD thesis of Dr M. Bouaicha on Fabrication and characterization of polycrystalline silicon solar cells, thesis defense on Juin 1998, University of Sciences of Tunis.
8. Interacted with Massaro Tamasuka, during his Ph.D. thesis preparation, Modeling of void formation in ultra pure silicon using the Fokker-Planck equations, NCSU, Aug. 1997.

### B. Master Degree:

1. Advised MS thesis of Mr Jeremy Peters, on Setup of «Near Field Scanning Optical Microscope» for measurement of carrier lifetime in silicon and material local stresses at nanoscopic scale.
2. Advised MS thesis of Sami Bouzaine, Design of a modular automated system for semi-conductor characterization: Topography, Resistivity Scanner, and Doping Profiler, ENSET, June 1993.
3. Advised MS thesis of M. Bouaicha, Confocale Scanning Laser Microscopy: Simulation of tri-dimensional images of polycrystalline silicon texture, INRST,<sup>2</sup> UST,<sup>3</sup> June 1992.
4. Advised the MS thesis of Anis Sallami, Automated System for Rapid Sorting of Photovoltaic Cells based on Flash Sun Simulator Coupled to an I-V Characteristic Scanner, ENSET, June 1992.
5. Advised the MS thesis of Fethi Boujmil, Setup of optical bench for high resolution measurement of reflectance spectroscopy: Application to surface treatments and antireflective coating of silicon with single layer and SiO<sub>2</sub> and TiO<sub>2</sub> stack, UST, June 1991.

### C. Advised Senior Projects

Listed below are the most report worthy senior projects I have mentored in the past:

#### Applied Physics:

1. Fabrication of Solar Cells using Polycrystalline Silicon by Integral Screen Printing, ENSET, June 1993.
2. Optimization of antireflective coating on Polycrystalline Silicon based Solar Cells, ENSET, June 94.
3. Graphical Interface for REFLEXIT, a Software that computes Diffuse and Specular Reflectances of textured materials based on "Ray Tracing" and "Optical Interferences", INRST, ENSET, Juin 1992.

#### Electronics:

4. Design and setup of a chemical processing automated batch processing system for cleaning, texturization, neutralization, and deoxydation of silicon wafers for solar cell unit plant of 100 kW/year, INRST/ENSET, 1993 - 1994.
5. Automation of a spectrophotometer using an analog programmer and stepper motor (INRST / ENSET, 1992 - 1993).
6. Computer controlled interface for a 2D goniometer for high resolution angular reflectance measurement (INRST / ENSET, 1992 - 1993 ).
7. Data acquisition and monitoring of solar dryer laboratory prototype (INRST / ENSET, 1992 - 1993 ).

<sup>1</sup> NCSU: North Carolina State University

<sup>2</sup> INRST: Institut National de Recherche Scientifique et Technique

<sup>3</sup> UST: University of Science of Tunis

8. IR communication of PC computer network using ISA PC boards (INRST / UST , 1991 - 1992 ).
9. Fourier Analyzer on ISA PC board for 1 to 20 kHz band (UST, 1990/91).
10. Feed-back loop for Frequency stabilization of Klystron Reflex microwave generator UST, 1989.

Renewable Energy: Smart Modern Architecture

11. Design and Coding of ARCHSOLAR Software, a Tool for Conscious Architecture of Solar Habitat based on Optimization of Solar Energy Capture, Distribution, and Dissipation, INRST, June 1993.