Christopher J Harris

502 Cinnaminson St
Riverton, NJ 08077-1325

http://cjharris.tk/
cjharris@alumni.rutgers.edu

Goal

Return to the *industrial sector*, to create new products or improve existing ones, whether the target entity involves material, equipment, software, or humans.

Profile

Chemical Engineer with over 20 years of graduate research in the semiconductor realm seeking to redefine opportunity:

crystal growth	plasma chemistry	computer modeling
surface science	laser excitation	python language
chemical vapor deposition	optical characterization	statistical analysis
molecular beam epitaxy	electrochemical methods	process control
semiconductor devices	applied neuroscience	laboratory automation

Literature

Real-time Monitoring of Surface Processes by P-polarized Reflectance, J. of Vacuum Science & Technology: **1997**, *A15*, 807.

Molecular Layer Epitaxy by Real-time Optical Process Monitoring, Applied Surface Science: **1997**, *112*, 38.

Boron Incorporation in Hydrogenated Amorphous Silicon Films Prepared by Chemical Vapor Deposition, J. of Noncrystalline Solids: **1987**, *97*, 1419.

Laser-induced Chemical Vapor Deposition of Hydrogenated Amorphous Silicon: Photovoltaic Devices and Material Properties, Solar Cells: **1987**, *21*, 177.

Experience

Engineering Consultant, LocalSolo Freelance: Vancouver, BC, Canada (1/18 to present) Provide technical resources to help organizations reach their full potential.

Substitute Teacher, Source4Teachers: Cherry Hill, NJ (12/13 to 2/15) Deal with special ed students with behavioral issues under the guidance of a child psychologist; present math, science, general curricula to individuals ranging from preschool through high school.

Research Assistant, Maine Chemistry Dept: Orono, ME (8/03 to 5/06) Apply cyclic voltammetry, an electrochemical measurement, to find: catalytic activity in gold compounds for methanol oxidation, and electrochemiluminescence (ecl) in a ruthenium compound for DNA analysis.

Research Assistant, NCSU Materials Science Dept: Raleigh, NC (5/96 to 5/99) Grow GaP heterostructure films on Si in a chemical beam epitaxy system, analyze plane polarized reflectance spectroscopy (PRS) / laser light scattering (LLS) in-situ optical signals, develop a radio frequency nitrogen plasma source for GaN film growth, and do a substrate temperature calibration based on reflectivity measurements.

Research Assistant, NCSU Materials Science Dept: Raleigh, NC (1/87 to 5/89) Design / build a microwave plasma chemical vapor deposition chamber, achieve a unique ellipsoidal plasma advantageous for film growth over typical spherical plasmas, and grow polycrystalline diamond films on Si.

Research Specialist, MIT Advanced Energy Materials Lab: Cambridge, MA (11/84 to 1/87) Use infrared laser to produce ceramic powders, amorphous Si films, and alumina-based crystals. Analyze transmitted / scattered optical signals from ceramic powder process, giving rise to a computer monitoring scheme. Set up interferometer to measure film thickness, providing a realtime signal, to calibrate growthrate. Develop process control loop for laser cavity tuning, leading to more reliable film properties. Collect in-situ stress measurements of growing films, through deflection of an optical laser, as sample curvature evolves. Optimize growth parameters of amorphous Si solar cells, and scale-up new chemistry of ceramic powders.

Education

MS *Physical Chemistry*	Rutgers: New Brunswick, NJ	Jan 2003
MS *Material Science*	North Carolina State: Raleigh, NC	unofficial
BS *Chemical Engineering*	Texas A&M: College Station, TX	May 1984
HS *Diploma*	Waltham High: Waltham, MA	Jun 1979

Honor

Bausch & Lomb Science Award