

# Christopher J Harris

502 Cinnaminson St  
Riverton, NJ 08077-1325

<http://cjharris.tk/>  
[cjharris@alumni.rutgers.edu](mailto:cjharris@alumni.rutgers.edu)

Goal	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 semiconductor research and 10 years of data science seeking to redefine opportunity in the industrial sector:		
	crystal growth	plasma chemistry	gene therapy
	surface science	laser excitation	applied neuroscience
	chemical vapor deposition	optical characterization	computer modeling
	molecular beam epitaxy	electrochemical methods	statistical analysis
	semiconductor devices	additive manufacturing	process control
Thesis	Real Time Reflectometry of Ga-based Compound Semiconductor Films on Silicon during Plasma Enhanced Molecular Beam Epitaxy, NCSU Materials Science Dept: 1999.		
	Clifton Strengths		
Character	Strategic	faced with any given scenario, can quickly spot the relevant patterns.	
	Learner	have a great desire to learn and want to continuously improve.	
	Ideation	able to find connections between seemingly disparate phenomena.	
	Futuristic	inspired by the future and what could be.	
	Self-Assurance	possess an inner compass yielding confidence in decision making.	
Milestone	Invent a new approach for process control to optimize laser power.		
	Write a Pascal based data acquisition program for DOS environment in 1986, long before LabView enters the Windows market.		
	Analyze optical signals from a ceramic powder reaction chamber, leading to a computer monitoring scheme, which replaces a human operator.		
	Construct interferometer to measure film thickness, providing a realtime signal, to calibrate growthrate.		
	Refine process control loop to stabilize laser power, producing a steady deposition rate with reliable material properties.		
	Collect in-situ stress measurements of growing films, through deflection of an optical laser, as sample curvature evolves.		
	Grow the first laser-induced, chemical vapor deposition, amorphous silicon solar cell.		
	Develop a microwave plasma, chemical vapor deposition system, to create polycrystalline diamond from methane gas, in a regime where kinetics dominates over thermodynamics.		
	Achieve a unique ellipsoidal plasma advantageous for film growth over spherical plasmas.		
	Design a radio frequency nitrogen plasma source for GaN film growth.		
	Monitor the surface evolution of compound semiconductor heterostructure films, in a chemical beam epitaxy system, with plane polarized reflectance spectroscopy.		
	Derive substrate temperature from plane polarized reflectance intensity.		
	Apply cyclic voltammetry to find: catalytic activity in gold compounds for methanol oxidation, and electrochemiluminescence in a ruthenium compound for DNA analysis.		
Experience	Engineering Consultant, Independent (1/18 to present)		
	Futures Trader, Independent (9/06 to present)		
	Research Assistant, Maine Chemistry Dept: Orono, ME (8/03 to 5/06)		
	Research Assistant, NCSU Materials Science Dept: Raleigh, NC (1/87 to 5/99)		
	Research Specialist, MIT Advanced Energy Materials Lab: Cambridge, MA (11/84 to 1/87)		
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		