Christopher J Harris

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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 research in the semiconductor realm 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

Character

Clifton Strengths:

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