JYOTHI SINGH

[Jyothi.singh@hccs.edu](mailto:Jyothi.singh@hccs.edu)

Chemistry Department [jyothi.singh@hccs.edu](mailto:jyothi.singh@hccs.edu) Houston Community College

10041 Cash Rd, Stafford, TX 77477 713 718 5818

# HCC TEACHING EXPERIENCE

Faculty, Chemistry Dept., HCCS Spring 2009 - current CHEM 1305 ( Introductory Chemistry Lecture)

CHEM 1111 ( Introductory Chemistry Lab )

CHEM 1311, CHEM 1411 ( General Chemistry I Lecture / Lab )

CHEM 1412 (General Chemistry II Lecture and Lab )

CHEM 2423 and CHEM 2425 ( Organic Chemistry Lecture and Lab )

# EDUCATION:

* Columbia University, NY, NY

Ph.D. and Masters in Physical Chemistry

* Madras Christian College, Chennai, India

B.Sc ( Chemistry Major, Physics and Math minors)

# OTHER WORK EXPERIENCE:

**IBM Corporation, East Fishkill, NY** Semiconductor Research and Development Center IBM Microelectronics Division

Advisory engineer, Advanced Process Technology Group

 Optical diagnostics to reduce defects and improve the yield of microelectronics chips fabricated at semiconductor processing facilities across company locations.

 Neural network models of critical semiconductor processes.

# ACADEMIC/RESEARCH EXPERIENCE:

# University of Kentucky, Dept. of Physics, Lexington, KY

Postdoctoral Fellow Research Topic: Rydberg atoms in electric fields

# Penn State University, Dept of Chemistry, State College, PA

Postdoctoral Fellow Research Topic: Surface Science, Ion Bombardment, Particle Imaging

# TEACHING/ LEARNING PHILOSOPHY:

* Every student can learn with deep understanding
* Past experience of learning does not define a student’s future learning journey
* Learning must be engaging, interactive and relevant
* True Learning changes the perception of the world, and is transformational

# RECOGNITION AND AWARDS

* West Houston Innovation Fellow 2020-2021

Innovation in Teaching, Learning, Culture

* IBM Invention/ Patent Plateau Award

# PATENTS AND PUBLICATIONS:

* Co-authored 14 patents and 15 publications in peer-reviewed journals

Partial list included below

**PARTIAL LIST OF PUBLICATIONS:**

1. Real-time measurements of plasma/surface interaction by Plasma-amplified photoelectron detection, G.S.Selwyn, B.D.Ai and J. Singh, Appl. Phys. Lett., 1988, 52, (23), 1953-1955.
2. Plasma-enhanced photoemission in argon discharges: Signal characterization and silicon doping effects, G.S.Selwyn and J.Singh, J. Vac. Sci. Technol., A 7(3), 982-986.
3. Role of the chamber wall in low-pressure, high-density etching plasmas, J.A.O’Neill and J.Singh, J. Appl. Phys., 1995, 77(2), 497-504.
4. rf-induced Quantum Interference between low-field Stark levels in Rydberg states of Na, J.Singh, X.Sun, K.B.McAdam, 1987, Phys. Rev. Lett. 58(21), 2201-2204.

**PARTIAL LIST OF PATENTS:**

* 1. Plasma-amplified Photoelectron Process Endpoint Detection Apparatus, J.H.Keller, G.S.Selwyn, J.Singh, US Patent 4,846,920, Jul 11, 1989.
  2. Detection of Interfaces with Atomic Resolution During Material Processing by Optical Second Harmonic Generation, T.F.Heinz, G.S.Selwyn, J.Singh, J.A.Spinetti, US Patent 5,294,289, Mar 15, 1994.
  3. Method and Apparatus for Optical Emission Endpoint Detection in Plasma Etching Processes, J.A.O’Neill, M.L.Passow, J.Singh, US Patent 5,308,414, May 3, 1994.
  4. Method and Apparatus for Contamination Control in Plasma Processing, R.S.Bennett, A.R.Ellingboe, G.G.Gifford, K.L.Haller, J.S.McKillop, G.S.Selwyn, J.Singh, US Patent 5,367,139, Nov 22, 1994.