

Harun Koku
University of Delaware
150 Academy St
Newark, Delaware 19716

July 30, 2011

Dear Dr. Swanson,

I would like to express my interest in the post doctoral research position offered regarding the modelling of tumour progression. During my dissertation, I have carried out research focused extensively on transport simulation and electron microscopy, and believe the experience I have acquired in these fields together with my enthusiasm on the potential of the studies conducted by your group could make me a useful contributor.

I have completed my Ph.D. studies and will have officially earned my degree on August 31st at the University of Delaware, Chemical Engineering. I am not a US resident, but authorized to work on an F1 visa extension provided by the University of Delaware, or on an H1B visa provided by the institution of employment.

I hope my attached resume, and the contact details of my mentors given below provide sufficient information on my skills and academic background. If additional details are required, I may be reached at my current address, by phone at: (302) 438-5435, or via e-mail at harun@udel.edu. Looking forward to hearing from you and best regards,

Harun Koku

REFERENCES:

Dr. Abraham M. Lenhoff
University of Delaware,
Department of Chemical Engineering
lenhoff@udel.edu
(302) 831-8989

Dr. Kirk J. Czymmek
University of Delaware,
Department of Biological Sciences
kirk@udel.edu
(302) 831-3450

Dr. Mark R. Schure
The Dow Chemical Company,
Theoretical Separation Science Laboratory
mark.schure@gmail.com

Harun Koku

Work address: University of Delaware
Department of Chemical Engineering
150 Academy St.
Newark, DE 19716
302-831-6314
harun@udel.edu

Home address: 7 Caldwell Place
Newark, DE 19711
302-438-5435

Objective

A post-doctoral position in a research oriented institution, that involves a combination of modelling and experimental work.

Research Interests

Transport modelling, protein separation and purification, ion exchange chromatography, scanning/transmission electron microscopy, metabolic modelling of microbial systems, renewable energy

Education

University of Delaware, Newark, DE

Ph.D. in Chemical Engineering, Advisor: Abraham M. Lenhoff August 2011 (expected)

Middle East Technical University, Ankara, Turkey

M.S. in Chemical Engineering, Advisor: Inci Eroglu August 2001

Middle East Technical University, Ankara, Turkey

B.S. in Chemical Engineering July 1998

Research Experience

June 2005 - present; supervisor Abraham M. Lenhoff (PhD)

- Developed TEM/SEM methods to image select ion-exchange materials in order to investigate structure and protein adsorption characteristics.
- Applied software algorithms for 3D reconstruction from 2D images.
- Performed image analysis using Matlab to infer pore size distribution and capacity characteristics.
- Currently working on Lattice-Boltzmann and Brownian dynamics modelling of flow and mass transfer in these media.

February 2004 - May 2005; supervisor Jeremy Edwards (PhD)

- Implemented a simplified dynamic model of the oxidative phosphorylation system in photosynthetic bacteria
- Performed metabolic flux analysis of a core model of *Rhodobacter sphaeroides*.
- Developed a C based microarray design tool.

March 1999 - June 2001; supervisor Inci Eroglu (MS)

- Worked on photobioreactor design and metabolic analysis for the optimization of hydrogen production by the photosynthetic bacterium *Rhodobacter sphaeroides*.

Publications

- Koku H, Eroglu I, Gunduz U, Yucel M, Turker L. Kinetics of biological hydrogen production by the photosynthetic bacterium *Rhodobacter sphaeroides* O.U. 001, Int. J. Hydrogen Energy, 28(4): 381-388, 2003.
- Koku H, Eroglu I, Gunduz U, Yucel M, Turker L. Aspects of the metabolism of hydrogen production by *Rhodobacter sphaeroides*, Int. J. Hydrogen Energy, 27, 1315-1329, 2001.
- Trilisky E, Koku H, Czymmek KJ, Lenhoff AM. Relation of structure to performance characteristics of monolithic and perfusive stationary phases. J. Chromatogr. A, 1216(36), 6365-6376, 2009.
- Bowes BD, Koku H, Czymmek KJ, Lenhoff AM. Protein adsorption and transport in dextran-modified ion-exchange media. I: Adsorption. J. Chromatogr. A, 1216, 7774-7784, 2009.
- Koku H, Maier RS, Czymmek KJ, Schure MR, Lenhoff AM, Modeling of Flow in a Polymeric Chromatographic Monolith. J. Chromatogr. A, 1218(22), 3466-3475, 2011.
- Koku *et al.*, Modeling of Dispersion in a Polymeric Chromatographic Monolith. (Manuscript in preparation).

Conference Papers and Presentations

- Biohydrogen 2002, April 21-24, Ede, the Netherlands, Koku H, Eroglu I, Gunduz U, Yucel M, Turker L. Aspects of the Metabolism of Hydrogen Production by *R. sphaeroides*. Poster and oral presentation.
- PREP 2007 Preparative/Process Chromatography Symposium, June 3-6 2007, Baltimore MD, Koku H, Bowes BD, Lenhoff AM, Correlating Structure to Function of Dextran-Grafted Agarose Media. Poster presentation.
- PREP 2009, Preparative/Process Chromatography Symposium, July 19-22, 2009, Koku H, Czymmek KJ, Schure MR, Maier RS, and Lenhoff AM, Microstructure based Modelling of Flow and Dispersion in a Polymeric Monolith, Presentation.
- 238th ACS National Meeting, August 16-20, 2009, Koku H, Czymmek KJ, Schure MR, Maier RS, and Lenhoff AM, Structure-based Modelling of Flow and Dispersion in a Polymeric Monolith, Presentation.

Teaching Experience

- Feb. – May 2005 Teaching Assistant, University of Delaware, Newark, DE. Course: Junior Lab.
- Aug. 1998 – May 2003 Teaching Assistant, Middle East Technical University, Ankara, Turkey. Courses: Thermodynamics I and II, Fluid Mechanics, Chemical Engineering Mathematics, Chemical Kinetics, Chemical Engineering Laboratory I and II

Languages

- Turkish (native), English (fluent), French (beginner)

Computer skills

- Operating systems: Windows XP (advanced), Linux (intermediate)
- Programming languages: Fortran 77/90 (advanced), C, Javascript (beginner)
- Office applications: MS Office, Photoshop
- Technical software: Matlab, Mathcad, R
- Specialized applications: ImageJ, Amira, Volocity (3D-rendering, image manipulation for microscopy), MPI