Samia Hamed

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Introduction

I am a PhD chemist skilled at process engineering and technology development, scientific research and communication. I have written patents and papers, driven forklifts and operated bandsaws, explored approximations to quantum chemical equations, and stood at the front of high school and university classrooms. I am drawn to opportunities at intersections of engineering and research, of mission and integrity, of focus and play - where the potential of ideas can become reality.

Experience

2020–present **Senior Process Engineer**, *Intel Corporation*, Santa Clara CA.

Engineer in technology development group and layer owner of Intel's next-generation EUV photomasks, initiating and participating in task forces and working groups to solve urgent problems, integrate complex projects, and ensure on-going progress. **Key achievements**:

- Wrote and implemented 12 whitepapers documenting process changes improving efficiency and quality.
- Led several CIPs involving critical dimension targeting and process yield, excursion investigations, and tool qualification data analysis.
- Member of mask planning committee working group responsible for driving decision-making and presenting technical ideas to leadership.
- In one year became lead trainer and mentor for new EUV integration team members; trained three new engineers in the last year.

2012–2020 **Physical Chemistry PhD Student Researcher and Instructor**, *UC Berkeley and LBNL - Neaton Group*, Berkeley CA.

Conducted research on the excited states of molecules with density functional and many body pertrubation theories. Taught general chemistry labs and led quantum mechanics discussion sections, grading assignments and exams. **Key achievements**:

- Published 8 papers with over 800 citations.
- Graduate Student Leader of the Kavli Energy Nanoscience Institute in 2015 and 2016.
- Coauthored successful ERCAP grant request to NERSC in 2016 for 10 million hours of computational time for the Neaton group's work on the theory of nanostructured materials.
- Member of College of Chemistry Committee on Faculty-Graduate Student Mentoring and coauther of survey and report to improve mentorship outcomes.
- Participant at DFT and Beyond workshop at ICTP in Trieste in 2013. Gave talks at APS in 2014, 2015, and 2017. Presented posters at TACC in 2016 and ACS in 2017.

2009–2012 **High School Chemistry Teacher**, *Navarro Early College High School*, Austin TX.
Taught general chemistry and integrated chemistry and physics to 150 students each year, providing free tutoring before and after school each day. Created labs and developed curriculum on a team for the entire grade. **Key Achievements**:

- Member of the campus advisory committee, 2011 and 2012.
- Siemens Teacher as Researcher, June 2011
- Forging Climate Connections participant, Nov 2010.
- Founder and faculty sponser of the outdoors and environmental club, 2010 and 2011.

2006–2009 **R&D Engineer**, *DIAB Group*, Desoto TX.
Worked on global and local projects to improve the processability and characteristics of core materials for sandwich composite technolgies while maintaining the security of the raw material supply by qualifying alternate suppliers and provided chemistry expertise to plant engineers. **Key Achievements**:

- Developed 2 patents in collaboration with scientists at factories in Italy, Sweden and Texas, traveling to Europe 8 times in two years to run full-scale production trials and work in pilot labs.

Education

2005 **Bachelor of Science in Chemistry**, *University of Texas at Austin*, Austin TX.
Dean's Scholar and National Merit Scholar

2020 **Doctor of Philosophy in Chemistry**, *University of California at Berkeley*, Berkeley CA.
Physical Chemistry, Neaton Group

Publications

1. Skalnik, C.J., Agmon, E., **Spangler, R.K.**, Talman, L., Morrison, J.H., Peirce, S.M., and Covert, M.W. (in review). Whole-Colony Modeling of *Escherichia coli*. *bioRxiv*.

2. Shaikh, B., Smith, L. P., Vasilescu, D., Marupilla, G., Wilson, M., Agmon, E., **Spangler, R.K.**, [...] and Karr, J. R. (2022). BioSimulators: a central registry of simulation engines and services for recommending specific tools. *Nucleic Acids Research*: https://doi.org/10.1093/nar/gkac331

3. Agmon, E., **Spangler, R.K.**, Skalnik, C.J., Poole, W., Morrison, J.H., Peirce, S.M., and Covert, M.W. (2022). Vivarium: an interface and engine for integrative multi-scale modeling in computational biology. *Bioinformatics*, 38(7), 1972-1979.

4. Allison Creason, David Haan, Kristen Dang, Kami E. Chiotti, Matthew Inkman, Andrew Lamb, Thomas Yu, Yin Hu, Thea C. Norman, Alex Buchanan, Marijke J. van Baren, **Ryan Spangler**, [...] and Kyle Ellrott (2021). A community challenge to evaluate RNA-seq, fusion detection, and isoform quantification methods for cancer discovery. *Cell Systems*, Volume 12, Issue 8, 827-838.e5.

5. Agmon, E., and **Spangler, R.K.** (2020). A multi-scale approach to modeling *E. coli* chemotaxis. *Entropy*, 22: 1101.

6. Macklin, D.N., Ruggero, N.A., Carrera, J., Choi, H., Horst, T.A., Mason, J.C., Sun, G., Agmon, E., DeFelice, M.M., Maayan, I., Lane, K., **Spangler, R.K.**, Gillies, T.E., Paull, M.L., Akhter, S.,

Bray, S.R., Weaver, D.S., Keseler, I.M., Karp, P.D., Morrison, J.H., and Covert, M.W. (2020). Simultaneous cross-evaluation of heterogeneous *E. coli* datasets via mechanistic simulation. *Science*, 369, eaav3751.

7. Adam Struck, Brian Walsh, Alexander Buchanan, Jordan A. Lee, **Ryan Spangler**, Joshua M. Stuart, and Kyle Ellrott (2020). Exploring Integrative Analysis Using the BioMedical Evidence Graph. *JCO Clinical Cancer Informatics*, :4, 147-159.

Patents

1. 2011 U.S. Patent US8492446B2 Leone Lauri, Eva-Lotta Magdalena Petersson, Raffaela Bressan, **Samia Mariam Hamed** Enhanced process for the production of expanded PVC and plastic materials based on expanded PVC obtained therewith

2. 2011 U.S. Patent US88956342B2 Leone Lauri, Eva-Lotta Magdalena Petersson, Raffaela Bressan, **Samia Mariam Hamed** Process for the production of expanded plastic materials, in particular PVC-based polymeric foams and a formulation of a polymeric blend for effecting said process

Technology

Languages	Python, Bash, SQL
Tools	QChem, Gaussian, molgw, CalibreMDP, Unix, Emacs
Areas	electronic structure theory, DFT and MBPT, MPC modeling, process engineering and technology development, data analysis and statistics