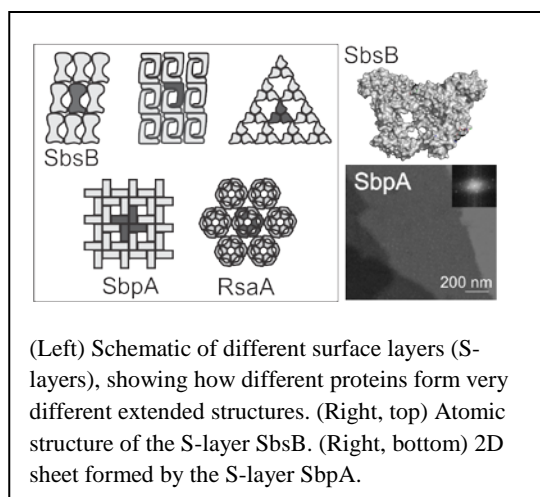


Join the Ajo-Franklin Research Group!

The Ajo-Franklin group uses biophysics and synthetic biology to explore the nanoscale interface between living microbes and inorganic materials. We are particularly interested in the basic mechanisms underlying charge transfer and material binding at this living/non-living interface. Ultimately, our research has applications in carbon-neutral energy production, bioelectronics, and hierarchical nanomaterials. Our labs are part of the Molecular Foundry at Berkeley Lab in Berkeley, CA. More info at: <http://cafgroup.lbl.gov>



(Left) Schematic of different surface layers (S-layers), showing how different proteins form very different extended structures. (Right, top) Atomic structure of the S-layer SbsB. (Right, bottom) 2D sheet formed by the S-layer SbpA.

We seek a new member to join our multi-disciplinary team of electron microscopists, inorganic chemists, and biophysicists working to develop a novel low-dose electron microscopy technique to structurally characterize proteins and protein/materials interfaces with unprecedented resolution. One of our first imaging targets for this new technique are surface (S)-layer proteins. S-layer proteins self-assemble to form 2D crystalline nanosheets both *in vivo* (on the outermost surface of cells) and *in vitro* with a variety of pore sizes and geometries (see Figure). The ability of S-layers are in many respects ideal nanoscale building blocks, however because they form 2D crystals only the structure of one S-layer protein has been solved by traditional methods. We will use this previously characterized

S-layer to demonstrate the power of this new imaging technique then extend this method to determine new S-layer structures.

The new team member would be responsible for expressing S-layers in bacteria, purifying them, characterizing them biochemically, and with our electron microscopy colleagues, developing sample preparation methods for electron microscopy.

About the Foundry: The Molecular Foundry at Lawrence Berkeley National Laboratory (Berkeley Lab) is a knowledge-based user facility for the design, synthesis and characterization of materials with nanometer dimensions. Its charter defines two primary missions: a) conduct outstanding research across the breadth of nanoscience; and b) collaborate with scientists from around the world who visit to use its state-of-the-art instruments, techniques and expertise to further their own nanoscience research efforts (<http://foundry.lbl.gov>).

Qualifications required: Ph.D. in molecular and cellular biology, biophysics, biochemistry, or related field. Knowledge of molecular biology. Experience in molecular biology (PCR, recombinant DNA, protein over-expression and purification), microbial cell culture, biochemical analysis. Experience in electron microscopy is preferred. Ability to communicate results effectively. Self-motivated, able to work as part of a team.

Salary will be commensurate with experience. This is a 1 year appointment to start in August/September 2015, and with the possibility of renewal for a second year.

To apply: Please send a curriculum vitae and a cover letter summarizing your interests to Dr. Caroline Ajo-Franklin, cajo-franklin@lbl.gov.