

Building Visibility for Post-Docs at Argonne and Beyond



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Most Important Things

- **Be open minded**
 - Don't assume you know something that you don't
- **Be honest**
 - If successful, your work will be reproduced by others
- **Be excited about your work**
 - Basically your job is whatever you want it to be so enjoy it.

Attend smaller conferences

- Talk about your work
- Listen to other people's comments/advice
- Don't be afraid to talk with prominent scientists at meetings



Communication Skills

- The ability to convey your ideas is the critical factor in raising your visibility
- Speaking
 - Organize presentations. Think how someone unfamiliar with your work will understand and interpret your presentation.
 - Modify your presentation for the audience
- Practice
 - The more you speak about your work, the better you will be able to convey your ideas.
 - Use audience questions to refine future presentations
- Writing
 - Let colleagues review your writing for content, language, and readability



Career pathways

- Vertical

- Leading expert in focused field

- Horizontal

- Breadth across a variety of fields

- Combination

- Leading expert but understanding it's role across a variety of fields.

- Think about the both value *and* context of your work.
- If you are going to be vertical then evaluate the relevance of your expertise.
- If you are more horizontal, then consider the how your expertise is valuable across fields



My career has been more horizontal

Jumping between chemistry and biology

- Section Leader - Chemical and Biological Technology – ES
- Associate Director – Chemistry Division
- Sr. Research Biochemist - Abbott Labs – Advanced Technology

- Postdoctoral Fellow – Abbott Labs - Alzheimer's Research
- Postdoctoral Fellow, - Argonne – Chemistry Division - Photosynthesis

- Ph.D. Biophysics – University of Virginia
- M.S. Physical Chemistry – University of Virginia
- B.A. Chemistry and Environmental Studies – Univ of Pennsylvania



Undergrad

- B.A. Chemistry and Environmental Studies – Univ of Pennsylvania
 - Internship @ the US EPA – Safe Drinking Water branch.
 - *Learned that I didn't want to be a regulator*
 - Internship with R. Buckminster Fuller – Energy Policy Analysis
 - *Learned that energy research is critical for society*
- I took risks jumping into fields that I knew little about.



Grad School

- **Physical Chemistry – University of Virginia – M.S.**
 - Time-resolved fluorescence spectroscopy of transition metal complexes interactions with surfactants
 - *Spectroscopy, computer interfacing, modeling, and inorganic synthesis*
 - While doing the M.S. work, there was a strong shift in emphasis to investigating biological systems. My advisor had never done biology
 - With no biology experience at all, I transferred to the Biophysics Program, but continued to work in the same lab.
- **Biophysics – University of Virginia – Ph.D.**
 - Binding interactions between lanthanides, transition metal complexes interactions and nucleic acids
 - *Self-taught myself DNA handling techniques.*
 - *Lasers, spectroscopic, computer modeling, sample handling experience*



Grad School

- Dramatic career shifts when needed –
 - To the chemists I was the resident biology expert and to the biologists I was the resident chemistry expert.
- Publications in a variety of areas
- Volunteered to run trial experiments at collaborators labs.
- Attended small conferences when I could. Gordon conferences are probably the best for interactions.
- Tried to interact with seminar speakers including getting invited to the dinners
- Help my advisor submit internal as well as NSF proposals.



Argonne Postdoc

- **Postdoctoral Fellow, - Chemistry Division - Photosynthesis**
 - In my job search I emphasized
 - *Instrumentation/computer interfacing*
 - *Spectroscopy*
 - *Working at the chemical/biological interface*
 - Marion Thurnauer contacted me and asked if I could interface a time-resolved EPR system. *I said sure.* I had never done any magnetic resonance work before.
 - Spent most of the time on new experiments rather than on instrumentation
 - *Tried to be involved in as many external and cross-divisional collaborations as possible*
 - *Attended Gordon Conferences and other smaller conferences.*
 - *Proposals weren't as much a part of Argonne's life in the basic side at that time. But I did participate in a few grants for seed projects.*



Abbott Labs Postdoc

Postdoctoral Fellow, - Abbott Labs - Alzheimer's Research

- In my job search I emphasized
 - *Instrumentation, Spectroscopy*
 - *Working at the chemical/biological interface, especially proteins*
- I was contacted and asked if I could run an analytical ultracentrifuge. *After a brief description of the technology I said sure.*
- Worked closely with the instrumentation and protein areas. With the neurobiologists, I became the local expert on handling aggregation phenomena
 - Volunteered to explore dramatically new probing technologies (AFM, dye labeling, etc.)
 - Presented at Neuroscience as well as Biophysical conferences
 - Attended regional management-level meetings on the biotech community
 - Started taking professional development courses.



Abbott Lab – Staff

Pharmaceutical Discovery Research – Advanced Technology

- Protein characterization in support of a number of therapeutic programs
- Excellent access to technology and interesting projects
- I was never in the drivers seat regarding R&D directions. That was always decided by the medical directors
- With my expertise, I didn't see any way to get beyond a bench scientist
- Continued taking professional development courses (writing, speaking, teamwork, etc)
- Attended conferences/workshops on R&D direction



Argonne – Chemistry Division

- Everyone should spend some time in administration/operations
- Learn how the sausage is really made
- In the Chemistry Division
 - Operations – ESH, QA, HR, budget, facilities, audits, programmatic reviews, etc.
 - Nanoscience Center
 - Biotechnology initiative –
 - *The collaboration with Energy Systems led to my transfer back to an research position.*



Argonne – Energy Systems

- Production of biobased chemicals, chemical processing, separations
- Chemistry, microbiology, biochemistry, chemical engineering
- Council of Chemical Research –
 - Argonne representative
 - Co-chair Research Collaboration Network
- DOE Office of Biomass
 - Lab relationship manager – help define direction of the DOE program
- iBIO – Illinois Biotechnology Industry Organization
- Internal programmatic committees – define Argonne directions



What we do at Argonne now.

Bring Biology and Chemistry together

- Bioprocessing, modeling, chemical engineering, materials, nanotech, biotech, biochem, microbiology
- Make chemicals and ethanol from corn or other agriculture

Why?

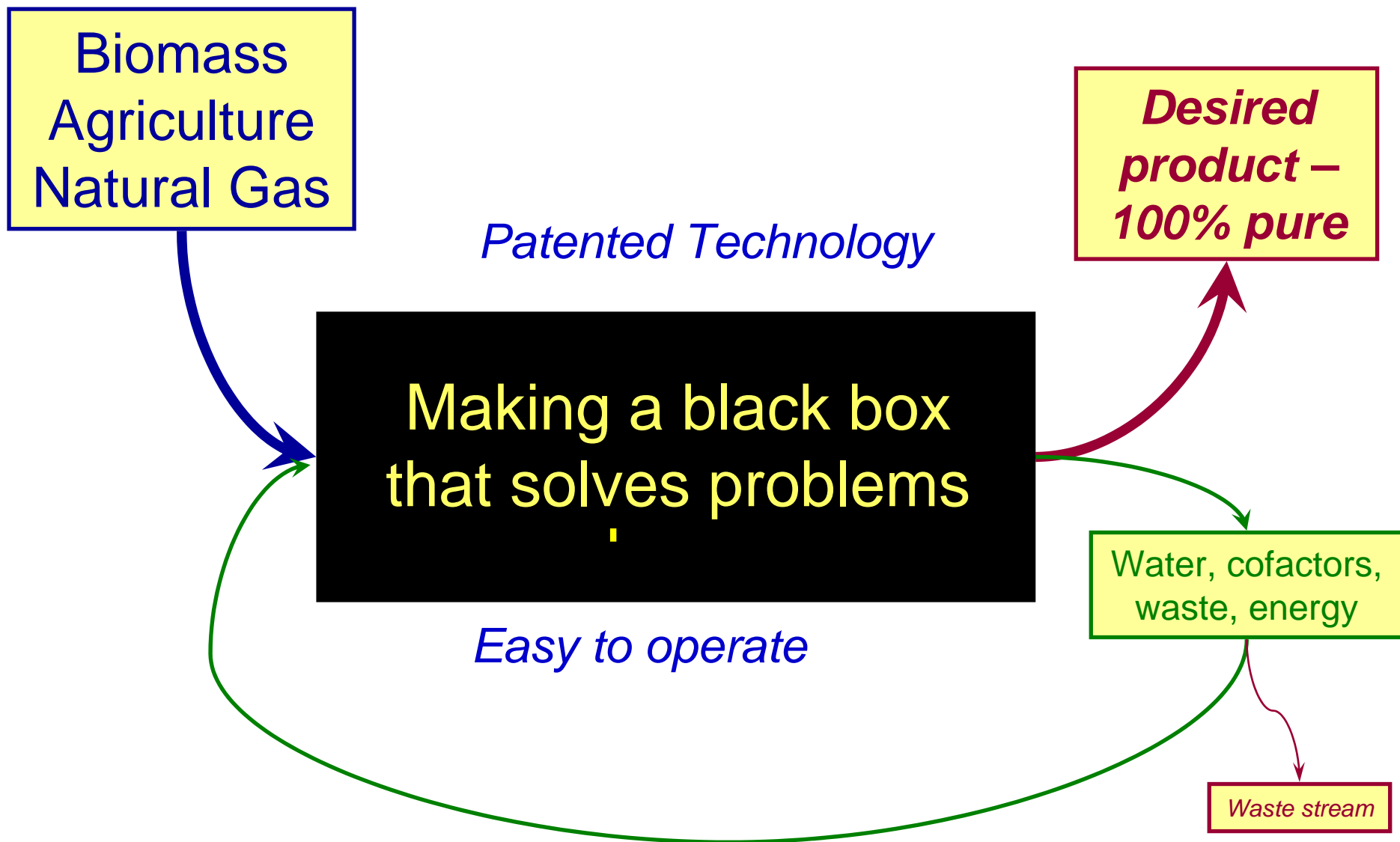
- Decrease use of imported oil
- Ethanol in gasoline
- Lactic acid – solvents, new plastics
- Acetic acid – over 4 billion lbs/year in the US.

Critical thing

- Make them “biobased products cheap”
- They only green that matters to people is money.



What we work on!



Current labs

Microbiology
Chemical engineering

