Summary of the Winton- Kavli Joint Workshop & Symposium

July 21-25, 2025

Entering Academia: Entering Academia: Perspectives from Faculty and Staff Scientists (US vs UK research landscapes), interdisciplinary research collaborations, reviewers' perspectives on fellowship applicants, communicating research to non-technical audience.

Panel:

- Joel Moore, Professor of Physics, University of California, Berkeley
- Sian Dutton, Professor of Physics and Solid State Chemistry, University of Cambridge
- Kwabena Bediako, Associate Professor of Chemistry, University of California, Berkeley
- Ting Xu, Professor of MSE, University of California, Berkeley

UK vs US Academia:

- **Resources & Tenure**: US institutions generally offer larger start-up packages, more funding, and clearer tenure pathways (with many research-intensive universities). UK positions often have less finance, time, and resources, especially in smaller universities, making funding harder to secure.
- **Funding & Grants**: In the UK, fellowship proposals can be very short (e.g. 3 pages). US federal grants benefit from early contact with program officers to pitch ideas.

Transition to Principal Investigator (PI):

- Moving from postdoc to PI requires managing large budgets and teams, often with little formal training. Some institutions provide proposal-writing or management workshops, but support varies.
- Building resilience is key: rejection of grants, prizes, and promotions is common.

Advice for Early-Career Researchers:

- **Networking**: Talk to colleagues, seek feedback on proposals, maintain connections, and secure strong letters of support.
- **Research Strategy**: Work smart - large facilities are not always necessary. Show a clear 5-year vision in fellowships rather than listing all past achievements.
- **Mentorship & Collaboration**: Build relationships to join big grants or centres. Be collaborative and personable.

Research Approach:

- Interdisciplinary work takes time; stay humble and ask basic questions.
- Avoid blindly following trends (e.g. AI, quantum); sabbaticals can help refresh or pivot research.
- New science often emerges by chance – do not only chase popular topics.

Career Development:

- Postdocs should treat their role as a bridge to upskill and broaden expertise, even if it requires compromises on topic or location.
- US PhDs are typically longer and more flexible in project direction compared to UK PhDs.
- Academia rewards "herd behaviour", but developing a niche is valuable for standing out.

Science Communication: Communicating Science to Nonscientists

Panel:

- Laurie Chong, Ph.D., Director of External Relations, LBNL
- Julie Formaciari, Ph.D., Program Manager, LBNL
- Alison O'Connor-Korb, M.A., Administrator, LBNL
- Ozzy Ogbeide, Ph.D., Postdoctoral Fellow, University of Cambridge

Bridging the Gap: Scientists and non-scientists often speak different "languages". Avoid "professor mode" (lecturing) and focus on building a personal connection.

Know Your Audience: Tailor messages for different stakeholders (e.g. public, funders, policymakers). Understand their motivations - economy, safety, politics, future, proximity.

Messaging Strategies:

- Start with shared experiences or universal themes.
- Use stories with relatable characters ("you") and analogies instead of jargon.
- Show science as a process, not just a list of facts.
- Highlight incremental research contributions, not just world-changing results.

Practical Tips:

- Develop an engaging elevator pitch or one-liner with a surprising fact and clear relevance.
- Use props, demonstrations, and emotional hooks to capture attention.
- Keep it concise - audiences have limited attention spans.

Handling Challenges:

- It is okay to say "I don't know" and answer respectfully.
- Adapt messages for culturally specific audiences using metaphors (e.g. New Africa Comics).

Engagement Opportunities:

- Participate in science festivals, museum programs, civic engagement groups (e.g. Berkeley ESAL), or department open days.

Overall Goal: Communicate to **persuade, inform, inspire, and educate**, always addressing the "so what?" - why the research matters to the audience.

Scientist in Industry: A Panel Discussion (alumni industry perspectives, start-up culture.

Panel:

- Wojciech Osowiecki, Ph.D., Product Marketing Engineer, Lam Research
- Ethan Curling, Ph.D., Materials Scientist, Roca Water
- Danny Hellebusch, Ph.D., VP, CO2 Electrolyzer, Twelve
- Jill Fuss, Ph.D., Managing Director, Activate Berkeley

Entrepreneurship & Funding Programs:

- **Activate Berkeley Fellowship** and **Cyclotron Berkeley** offer free lab space, mentorship, research stipends, and up to $100k to develop breakthrough technologies without taking equity.
- Programs like **Strauch Cleantech to Market**, **Berkeley Innovative Solutions (BIS)**, **SBIR**, and **STTR** support commercialization and small business R&D.
- Networking events (e.g. happy hours, clubs, committees) are key for meeting investors, mentors, and collaborators.

Academia vs Industry:

- Industry is team-focused, fast-paced, and driven by short timelines and customer needs.

- Work starts backwards from milestones to secure funding, requiring decisions with limited data and fewer experiments than in academia.
- Intellectual property (IP) is critical but can be restricted by existing patents.
- Academia focuses on long-term experiments and publications; industry prioritizes market-driven results.

Career Development & Skills:
- A PhD is valuable for deep-tech roles; postdoc experience can help but is not always required.
- Essential skills: project management, concise communication, networking, and self-awareness.
- AI skills are increasingly useful but will not replace advanced degrees soon.
- Some roles / sectors (e.g. semiconductors) may require relocation (often to Asia).

Work Culture & Lifestyle:
- Industry demands adaptability and resilience - deadlines and uncertainty are common.
- Work/life balance can be challenging; maintaining hobbies, friendships, and fulfilment outside work is important.
- Careers are long; it can be wise to take stepping-stone jobs to gain experience even if they are not ideal.

Job Search Tips:
- Actively network via LinkedIn, career fairs, and direct outreach - always research companies or papers before contacting.
- Explain clearly the value of a PhD or postdoc in applications and interviews.
- Build reciprocal relationships ("intrapreneurship") by giving time and support to others.

Spinning out/ VC/ Entrepreneurship

Panel:
Chon Tang, Ph.D., Berkeley SkyDeck
Katrina Roundfield, Ph.D., Appa Health

Challenges & Mindset
- Convincing investors to fund a non-existent product is difficult; scalability of inventions is critical.
- Moving from PhD research to building a company requires a steep learning curve in pitching, fundraising, customer development, and legal matters.
- Founders must be passionate, resilient, and adaptable, able to pivot quickly as priorities change.

Support & Resources
- **Skydeck (Berkeley)** offers advisors, marketing/product guidance, investor panels, legal insights, and a peer network of founders.
- Peer networks and mentorship provide vital knowledge and connections.

Team & Structure
- Choose co-founders carefully—balance idea generators with strong executors.
- No one has all required skills; build a complementary team.
- When commercialising university research, use the PI mainly for technical advice; if involved, share ownership fairly (e.g. 50%).

Market Strategy
- Identify a problem worth solving and who will pay for the product (and how much).
- Engage end-users early and test multiple versions of the company concept to find the best market fit.

Investment Landscape

- Silicon Valley offers unmatched capital, experienced talent (ex-founders investing or joining startups), and a strong customer base.
- European investors often invest in EU companies based in Silicon Valley
- Current hot sectors include **metaverse, drones, VR, crypto**, and technologies poised to disrupt giants like Google or Meta.

Key Takeaway

- Successful spinouts require passion, market validation, and the ability to assemble the right people and resources - not just a great idea.

Flash talks and poster presentations

- University of Cambridge and UC Berkeley researchers each gave a flash three-minute talk on their research and poster presentations

Workshop participants

Final Research Group Project Outlines:

1st Prize: Centre for Sustainable Futures (CSF) - Dylan A. Almeida, Heyang Zhang, Baichuan Na, Bassil Alaeddin, Isuri Ratnayake, Osarenkhoe Ogbeide

At the heart of the CSF's mission is the belief that the future of sustainability lies in the collaborative research and convergence of scientific disciplines, where technology does not exist in isolation but as part of an interconnected ecosystem. A key emphasis of the Centre is on synergising technological advancements to unlock their collective potential for sustainability. By linking concepts across domains, CSF aims to build a foundation for transformative innovation, ensuring that emerging and future technologies are inherently sustainable in their design, application, and impact.

2nd Prize: TWIST: The Winton Programme for the Integration of Sustainable Technology - Ishaan Lohia, Anish Chaluvadi, Cong Zhao, May Ching Lai, KM Shivangi Shukla, and Isaac Craig

The Winton Programme for the Integration of Sustainable Technology is designed to bridge the critical gap between laboratory success and commercial deployment through focused effort on integration, scale-up, and advanced manufacturing. TWIST embeds science-led breakthroughs in real-world systems for tangible impact.

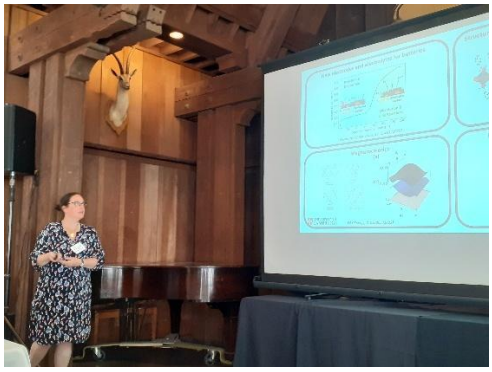
AInanoLab: AI-enabled multimodal characterisation of nanomaterials - Maria F. Guzman, Yuxin Jiang, Ziyu Xiang, Zeke Coady, Haleem Kim

Aim to establish an AI-driven collaborative research cluster – called “AInanoLab”– that integrates diverse characterization instruments with machine learning in a closed-loop, autonomous workflow. AInanoLab will aim for order-of-magnitude acceleration in discovering and understanding novel materials. The collaborative

platform brings together experts from multiple disciplines and tools under one AI-operating system, to create a cross-disciplinary, data-sharing ecosystem akin to a Molecular Foundry for AI-driven characterisation where researchers have access to cutting-edge expertise and instrumentation in a collaborative environment powered by intelligent automation.

Materials for Energy Transition Acceleration (META)– Lawrence Brazel, Timothy Lambden, Dhruv Menon, Aleksandr Radic, James Steele & Kevin Wang

The META Consortium tackles urgent scientific challenges that are essential to the global transition to a sustainable energy future. The programme will develop better batteries, efficient computing technologies, and clean chemical processes for the betterment of wider society. By combining expertise across Cambridge and Berkeley, and integrating advanced characterisation with data-driven design, the programme is well positioned to deliver both the new techniques and materials necessary for the net-zero future.



Symposium talk, Professor Sian Dutton

Molecular Foundry Lab tour by Laurie Chong

Marvell Nanolab Lab tour by Dasom Lee