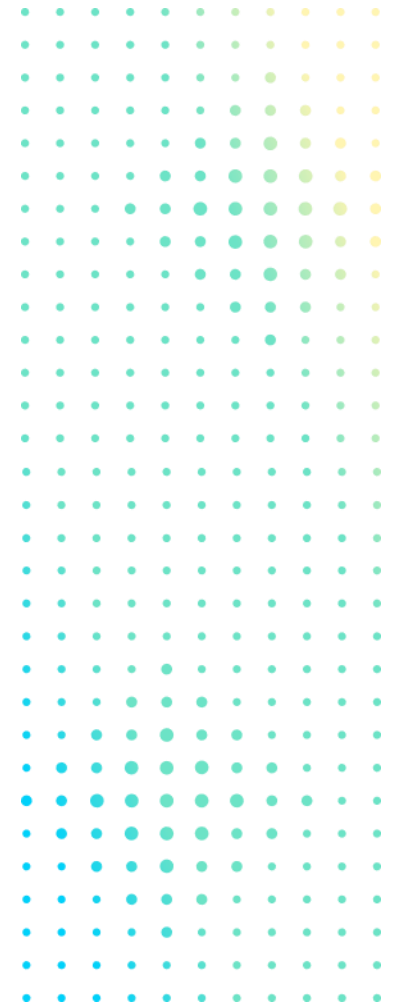


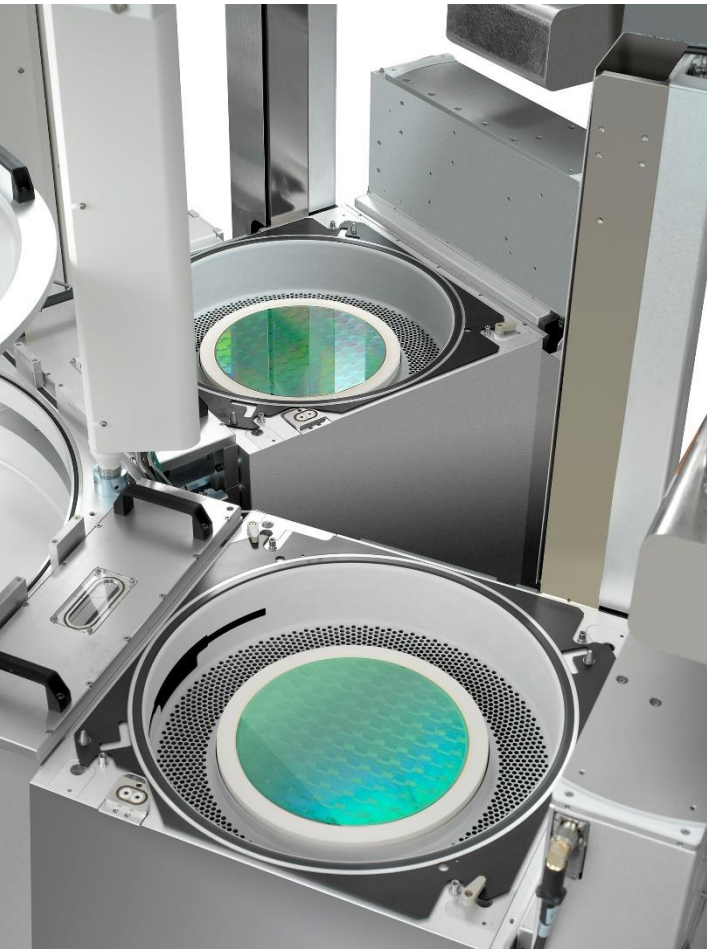
Introduction to Unlock Ideas 2022

Nerissa Draeger, Director of Global University Engagements, OCTO
on behalf of the University Committee and Global University Council

March 2022



Lam Research at a glance



A global leader in wafer fabrication equipment and services since 1980

~16,300 employees across North America, Asia, and Europe

~\$16.5B annual revenue (2021)

2021 Awards and Recognition

World's Most Admired Companies

Fortune

America's Best Employers

Forbes

World's Top Female-Friendly Companies

Forbes

Best Places to Work for LGBTQ Equality

HRC Corporate Equality Index

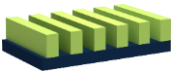
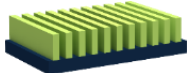
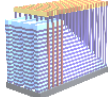

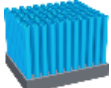
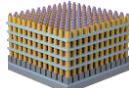

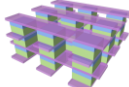
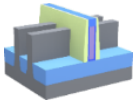
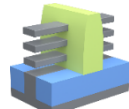


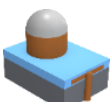
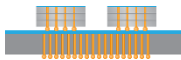
Supplier Continuous Quality Improvement Award

Intel

100 Best ESG Companies

Investor Business Daily

We focus on solutions for critical customer inflections

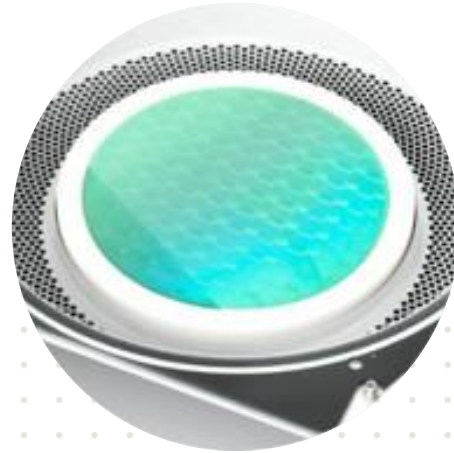
Patterning		Multiple patterning and EUV	▶	EUV with dry photoresist Additive Patterning	
3D NAND		3D NAND	▶	Stacked 3D NAND	
DRAM		DRAM	▶	3D DRAM	
New memory		Phase change memory XPoint and MRAM	▶	3D vertical New materials	
Transistor		FinFET	▶	Gate All Around	
RC management		Copper tungsten	▶	New integration New materials Barrierless	
Chip integration		Wafer-level packaging Through-silicon via	▶	Heterogeneous Integration	

Our cutting-edge products and services



Deposition

- Atomic layer deposition (ALD)
- Chemical vapor deposition (CVD)
- Plasma-enhanced CVD
- High-density plasma CVD
- Electrochemical deposition (ECD)



Etch

- Atomic layer etch (ALE)
- Reactive ion etch (RIE)
- Deep RIE
- Bevel etch



Strip & clean

- Plasma resist strip
- Plasma bevel clean
- Wet clean/strip/etch



Service & support

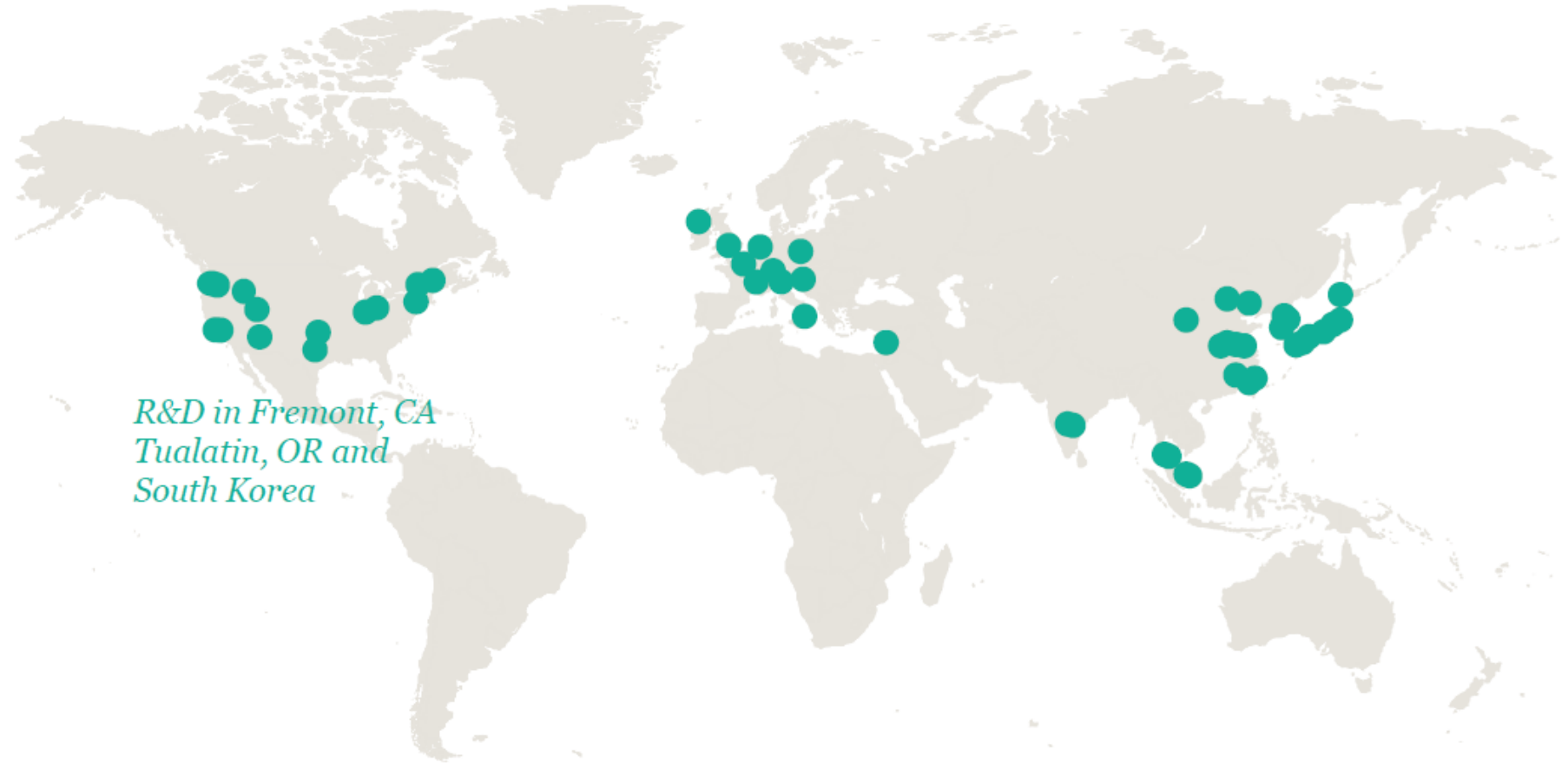
- Tool and maintenance automation
- Data analysis/visualization
- Advanced process and equipment control

We source innovation from all over the world

Our global positioning and reach allow us to advance our products and services.

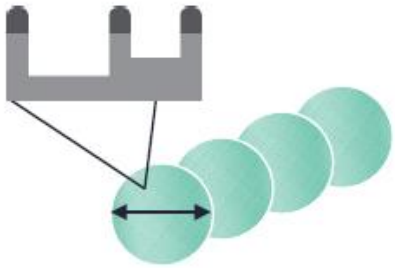
With locations and team members across the globe, we innovate to power the greatest possibilities of tomorrow.

We engage with a wide variety of universities worldwide to collaborate on essential innovation and grow our technology and talent pipelines.

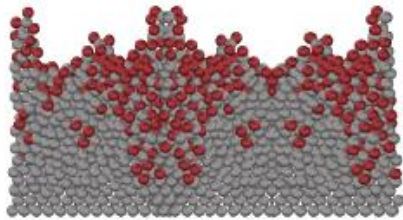


We aim to overcome grand challenges faster

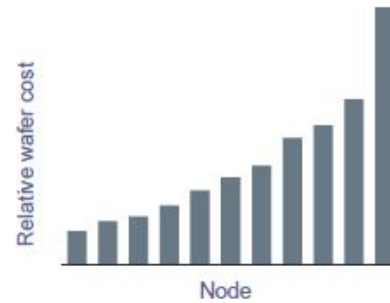
**ATOMIC-SCALE
PRECISION**



**SURFACE
INTEGRITY**



**AFFORDABILITY &
SUSTAINABILITY**



**SMART
MANUFACTURING**



**SPEED TO
SOLUTION**



We require expertise in enabling technologies

Subsystems

- RF power delivery and control
- Chamber materials
- Heat flow and control
- Fluid delivery and pressure control

Software & controls

- Computing and networking
- Data management, analytics and algorithms
- Sensors and metrology
- Modeling and simulation

Automation & robotics

- Automation and robotics
- Manufacturability
- Reliability and self-aware systems
- Serviceability and intelligent maintenance
- Ease of use and autonomous systems

Process & materials

- Process chemistry and materials
- Process interactions and interfaces
- Novel processing technologies

Sustainability & productivity

- Energy and water use reduction
- Process chemistry recovery/recycling
- Alternative process or tool materials
- Manufacturing waste reduction
- Speed to solution

Lam university engagements

Academic research engagements help us accelerate innovation, increase our speed to solution for our customers and realize Lam's Tech Vision.

Ongoing relationships with professors and students fuel our diverse technology and talent pipelines.

Lam engages with a wide variety of global universities to:

- Monitor emerging technologies
- Test feasibility of disruptive ideas
- Fill gaps in fundamental research
- Gain access to specialized facilities
- Partner with top experts in the field

Technology Vision



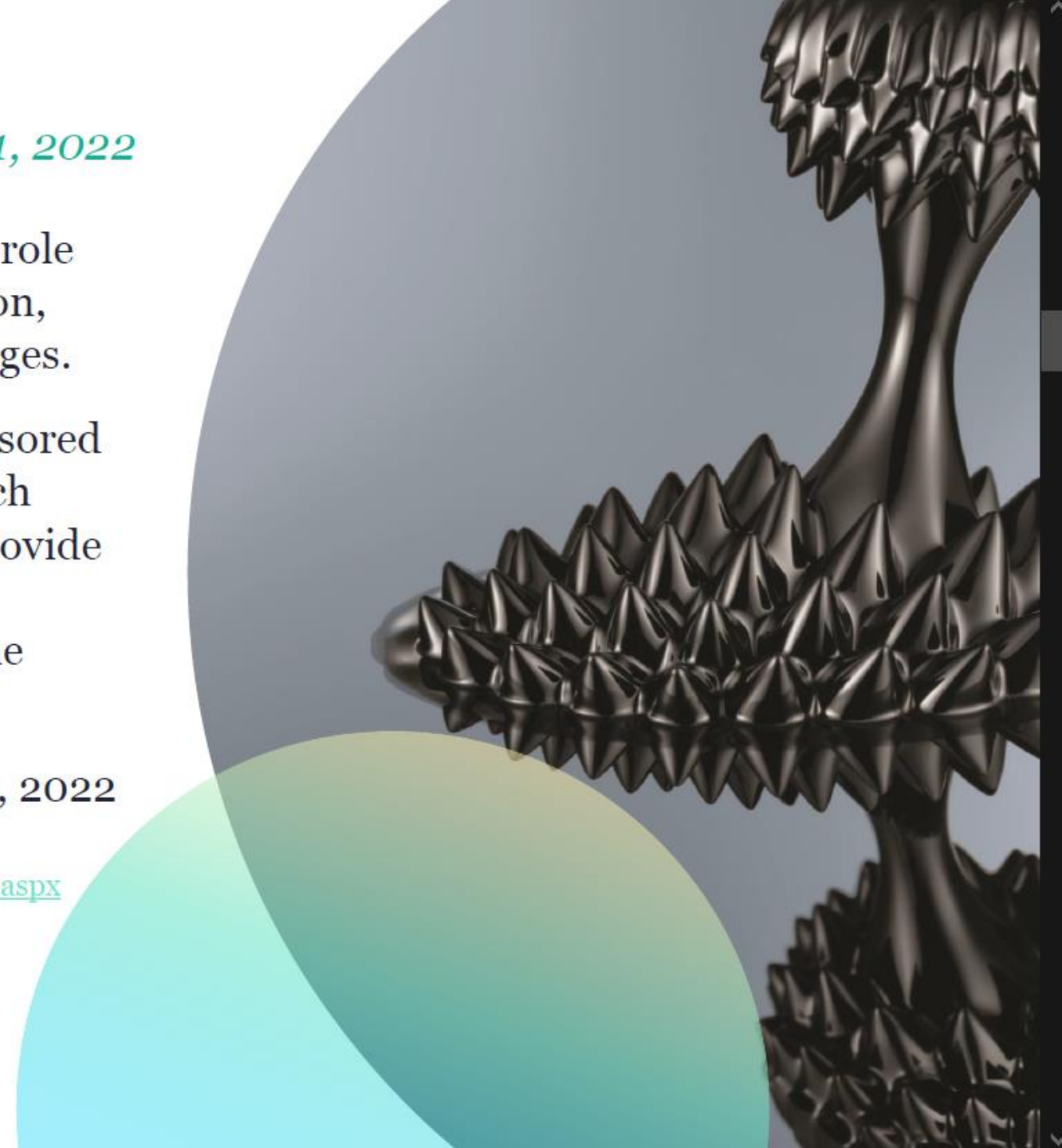
Unlock Ideas call for proposals opens March 21, 2022

Lam's academic research engagements play a key role in advancing innovation, encouraging collaboration, and providing insights on future technical challenges.

Unlock Ideas is an annual call for proposals, sponsored by the Office of the CTO, to fund academic research collaborations on novel or disruptive ideas. We provide winning proposals with a monetary donation of US\$50,000 to a university professor for testing the idea.

Submit your proposal during March 21 – April 29, 2022 to impact Lam's future!

<https://thepoint.lamrc.net/dept/octo/Universities/Pages/unlockideas.aspx>



Unlock Ideas program overview



Research proposals should:

- Encourage testing of novel or disruptive ideas for grand challenges
- Support fundamental research on emerging technologies
- Apply to our hardware, systems, software and controls, materials or processes
- Partner with a university professor and relate to their current research focus
- Connect Lam to faculty expertise and/or academic resources that increase our speed to solution
- Involve non-proprietary research and have no restrictions to intellectual property or technical publications

Proposals will be ranked on degree of innovation, potential for industry impact and quality of proposal

Unlock Ideas changes for 2022



Two important changes for this year's program:

1. Based on feedback from you and our faculty partners, we are increasing the award amount to US\$50,000 per proposal
 - The prior award amount had been held at US\$25,000 since the program started in 2015
 - A larger award may enable a greater proposal scope, lengthen the time period for testing the idea, and attract more faculty interest in collaborating with Lam
 - The award will still be limited to non-proprietary, unrestricted research and will be given to the university partner as a donation
2. We are limiting Unlock Ideas submissions to new, unfunded ideas
 - They may be in collaboration with professors who have previously been given Unlock Ideas awards, but only for new ideas or technologies
 - If you led a successful Unlock Ideas project that you would like to continue, you may submit that proposal to the Elevate Ideas program instead. More information will be shared in April

Key timelines of Unlock Ideas 2022

Early submission of proposal draft to Lam Taiwan by Apr 8th, 2022

Final Submission to Unlock Ideas Committee in Lam Research Headquarter (done by Lam Taiwan correspondents, Apr 29th)

Award announcement (end of July, exact date will be noticed) by Unlock Ideas Committee

For further enquiries, pls contact Lam Research Taiwan representatives:

Ken Tsang : Ken.Tsang@lamresearch.com/0926-314707; Joanna Kao : Joanna.Kao@lamresearch.com/0917-099668

