Search for the Director
Texas A&M Semiconductor Institute

Texas A&M University
College Station, Texas

THE SEARCH

The Texas A&M University System (System) is seeking an experienced and innovative leader to serve as inaugural Director of the Texas A&M Semiconductor Institute (Institute). Created in response to federal and state-level CHIPS and Science Act legislation, the Institute represents an ambitious and transformational investment to advance research of semiconductor technologies and create a hub for expertise and resources that strengthen the semiconductor industry in this country.

In May 2023, the System Board of Regents approved the establishment of the Institute. In June 2023, Texas Governor Abbott signed the Texas CHIPS Act appropriating $1.4 billion in funding for semiconductor research, development, and manufacturing for Texas, where $226.4 million was directly appropriated to the System. Significant additional funding is anticipated for the Institute through the federal CHIPS and Science Act.

The Institute will be a multidisciplinary research organization that focuses on advancing semiconductor manufacturing technology and promoting workforce development in the semiconductor industry. The Institute will also serve as a hub for research collaboration between academic researchers, industry, and government partners to develop innovative solutions to complex semiconductor manufacturing challenges. The Institute will also coordinate education and training programs to help develop the next generation of the semiconductor workforce, including undergraduate and graduate courses, professional development programs, and continuing education opportunities. In addition, the Institute will be committed to providing secure production of semiconductors for the defense department, ensuring the integrity and reliability of the semiconductor supply chain for national security purposes.

The successful candidate will be a talented leader who brings a proven track record of accomplishment and breadth of relationships in the semiconductor industry. As an inaugural role, the director must be an entrepreneurial leader with a drive, vision, and inspiration to build a significantly funded research institute from the ground up. The ideal candidate will possess significant experience as a senior executive in a research, government, or business organization focused on semiconductors and/or related technologies.

Texas A&M University has retained Isaacson, Miller, a national executive search firm, to assist in this recruitment. All inquiries, nominations, and applications should be directed to the search firm as indicated at the end of this document.

BACKGROUND

The widespread use of semiconductor chips is ubiquitous in modern daily life, supporting national defense, health, energy, manufacturing, automobile, communications, and computing applications. Although the U.S. invented semiconductors and manufactured 37% of chips in 1990, today just 12% of modern chips and none of the most advanced chips are manufactured in the U.S. The nationwide chip shortage and an over-dependence on manufacturing in countries of concern is a national security risk that underscores the urgent need to increase domestic production of this critical technology. In the summer of 2022, Congress passed the CHIPS and Science Act to strategically position the U.S. in this sector and ensure leadership in semiconductor manufacturing. Over $13 billion is available in federal R&D funds, and many states are seeking a portion of this funding.

As a leader in semiconductor exports, Texas is poised to help fill domestic manufacturing capability gaps, solve research & development (R&D) challenges and train the future semiconductor manufacturing workforce in the U.S. It is essential not only to the state's economy, but to the nation's security. The state has made significant state-level investment through the Texas CHIPS Act, a multibillion-dollar investment to institutions of higher education in Texas for semiconductor research and industry-recognized workforce development training. The legislation establishes a Texas Semiconductor Innovation Consortium (TSIC), which will manage a fund supporting semiconductor R&D efforts throughout the state. These actions help to ensure chips independence and allow Texas to be competitive for federal allocations toward cutting-edge fabrication technologies and semiconductor workforce development.

The System serves a major role in TSIC by leading the creation of the Institute. The Institute will lead major U.S. CHIPS and Science Act proposals for the state aligned with two of the three major national R&D initiatives:

> **(1) National Semiconductor Technology Center (NSTC):** A public-private consortium to conduct semiconductor research, provide prototyping capabilities, establish an investment fund and expand industry-recognized workforce development training programs.

(2) Manufacturing USA Institutes (MUSAI): A network of private, government, and academic organizations focused on research capacity and human capital resources for semiconductor manufacturing.

TEXAS A&M UNIVERSITY SYSTEM

The Texas A&M University System is one of the largest systems of higher education in the nation, with a budget of $7.2 billion. Through a statewide network of 11 universities, a comprehensive health science center, eight state agencies, and the RELLIS Campus, the Texas A&M System educates more than 152,000 students and makes more than 24 million additional educational contacts through service and outreach programs each year. System-wide, research and development expenditures exceed $1 billion and help drive the state's economy.

TEXAS A&M SEMICONDUCTOR INSTITUTE

Vision, Mission, and Goals

Overall, the Texas A&M Semiconductor Institute aims to promote the growth and competitiveness of the semiconductor industry in Texas and beyond. The vision of the Institute is for the System to become a leader in semiconductor technology and enable national independence in semiconductor manufacturing. The mission of the Institute is to advance the development and production of semiconductors through cutting-edge research, collaboration with industry and government, and education and workforce development. The specific goals of the Institute are to:

1. Conduct research and development in semiconductor manufacturing, including materials, processes, and device structures, to enable the next generation of semiconductor devices.
2. Collaborate with industry partners to transfer technology from research to commercialization and to identify industry needs for future research.
3. Seek federal and state funding to support research, development, and workforce development in the semiconductor industry.
4. Provide education and training opportunities for students, researchers, and industry professionals to advance their skills and knowledge in semiconductor manufacturing.
5. Foster a culture of innovation and entrepreneurship by encouraging the formation of startup companies based on semiconductor technologies.
6. Establish a secure semiconductor fabrication capability to support the needs of the defense department.
7. Address the national need to regain U.S. leadership and security in semiconductor manufacturing.

Location and Facilities

The System will provide space in a new facility at its RELLIS Campus to house the Institute. The RELLIS Campus is more than a research and educational facility. RELLIS is the first integrated education, research, and testing institution in the state of Texas. It is an ecosystem of transformative innovation like few others in the world, built to close the loop between research and implementation in an array of industries. At the new site, the Institute will have access to state-of-the-art research facilities and equipment to conduct cutting-edge research and development, such as clean rooms, semiconductor testing equipment, and specialized fabrication tools.

Staffing

The Institute is currently overseen by an interim director and member of the A&M faculty, Dr. David Staack, until the conclusion of the search for a permanent director. It is expected that the new Director will play a lead role in building a team of experienced researchers, educators, and support staff to oversee its various programs and initiatives. This could include professors, postdoctoral researchers, engineers, and administrative personnel. To date, over 85 System faculty have been identified with an interest in semiconductor manufacturing.

Funding

Currently, the System has been appropriated $226.4 million with more anticipated from both state and federal funds via the Texas CHIPS Act and the federal CHIPS and Science Act. The state of Texas will also create a sustaining fund for longer-term R&D investments in semiconductor manufacturing. The U.S. Department of Commerce funding is expected to be solicited in January 2024 and to last five years. Texas should be competitively placed for a share of the federal dollars as Texas is currently a national leader in semiconductor manufacturing; U.S. Sen. John Cornyn, R-Texas and U.S. Rep. Michael McCaul, R-Texas, helped lead the effort to pass the CHIPS semiconductors legislation; and Texas A&M already has strong ongoing semiconductor research.

Additional funding will come from a variety of sources, including government grants, industry partnerships, industry-sponsored research, corporate sponsorships, and private donations. Many of these funding avenues are already active within the System campuses and state agencies.

THE ROLE

As an inaugural position, the director occupies a unique and highly visible role. They will have overall responsibility to lead the design, development, and implementation of the Institute. The director will serve as a critical member of the System senior leadership team and play an essential role in the future growth and advancement of one of the nation's largest and most research-productive university systems, as well as the semiconductor industry both in Texas and across the country. They will work in close

collaboration with key leaders across the System, ensuring that the necessary infrastructure and systems are in place to support the launch of the Institute and position it for long-term success.

The director will report to the Vice Chancellor for Research for the System. The director will additionally be supported with input by an External Advisory Council and an Internal Advisory Committee. These two bodies will be expected to meet at least annually to provide input in the advances and success of the Institute.

CHALLENGES AND OPPORTUNITIES

The Director will address the following key opportunities and challenges:

Set a vision and strategy that positions the Institute as a national hub for semiconductor technology.

The U.S. CHIPS and Science Act, alongside the Texas CHIPS Act, represents a substantial commitment by both the federal and Texas state governments to extend leadership in the semiconductor domain. To fully capitalize on this opportunity, the director must develop a vision and deliver strategic and operational plans that advance the development of the Institute from concept to execution. Providing subject matter expertise and leadership to the Institute, they will have responsibility to develop an overall strategy that guides significant funding towards the development of programmatic, personnel, and physical infrastructure resources to bring the Institute to life. The director will also build relationships with senior leadership across the System and with partner organizations to develop and execute shared goals, thereby increasing the visibility of Texas A&M's research and activities to maximize advancements in semiconductor technology.

Develop collaborations that advance semiconductor research, development, manufacturing, and workforce development expertise.

The director will need to build capabilities for the Institute to partner with key stakeholders in semiconductor technology on several initiatives including: the development of new technologies and products, access to research expertise and facilities, and workforce development and training programs. The Institute will seek funding and conduct research in areas such as new semiconductor materials, device structures, and manufacturing processes. This can include but is not limited to research on semiconductor wafer scale manufacturing processes (i.e. advanced production methods, quantum and AI chip fabrication, and degree and certificate programs that provide hands-on fabrication training) and research on smart and resilient manufacturing. Another critical area is the development of technologies and processes for the secure production of semiconductors for the defense department. Additionally, the Institute is poised to play an important role in helping to solve some of the critical workforce challenges associated with semiconductor production. The Institute will coordinate education and training programs among multiple System institutions and partners throughout Texas to develop the skills and knowledge needed for careers in the semiconductor industry.

Build the Institute's operational and administrative infrastructure

As a newly created Institute, the director will need to bring an entrepreneurial mentality and approach to all aspects of their leadership. They will be responsible for establishing the foundation for processes and procedures in the management of the Institute. They will develop and manage the Institute's budget and ensure effective and appropriate expenditure of significant funding amounts. Additionally, they will lead in the hiring, developing, and retaining of a highly-qualified team of researchers, educators, and support staff to oversee its various programs and initiatives. They will develop strategies around human capital, physical infrastructure, program management and collaborative agreements to meet Institute's strategic goals. Successfully laying this groundwork will enable the Institute to provide long-term planning and vision for the System's research efforts in semiconductor manufacturing and help ensure the System's research agenda is aligned with the semiconductor industry's needs and is sustainable in the long run.

QUALIFICATIONS AND EXPERIENCE

The search committee recognizes that no single candidate will bear all the ideal qualifications, but it seeks candidates with many of the following qualities, skills, and characteristics:

- A master's degree (Ph.D. encouraged) in a relevant field of study and 15+ years of relevant full-time experience with at least 5 years of experience in a management role;
- Effective record in a senior leadership-level role of an academic or research institution, corporate entity, or an equally complex organization;
- Focused expertise in semiconductor technology with the ability to guide and oversee research in this field;
- Experience with long-term planning and vision for research efforts in semiconductor manufacturing;
- Evidence of dynamic leadership, outstanding communication, and administrative skills to articulate an inspiring vision for the Institute's future;
- Record of leadership supporting access to resources such as specialized facilities, equipment, funding, and expert staff;
- Success in promoting increased visibility of research in semiconductor manufacturing;
- Demonstrated record of securing research funding and familiarity with federal and state funding agencies, grant application procedures, and industry funded partnerships;
- Experience in innovation and entrepreneurship;
- Seasoned financial and budgetary management skills;
- Accessible, approachable, authentic, genuine, supportive, and transparent individual with all stakeholders;
- Ability to communicate and work with diverse groups in a complex, dynamic environment that includes education and research;
- A level of professional credibility and personal charisma that allows them to attract and retain talented faculty, researchers, and staff;

- Ability to inspire partnerships, and develop the internal and external ecosystem required for Institute's success;
- A clear understanding of the semiconductor landscape and the current national trends and priorities in semiconductor research.

TO APPLY

All inquiries, nominations/referrals, and applications (including resume and letters of interest responding to the requirements outlined in the position profile) should be submitted via Isaacson, Miller's website:

Andrew Lee, Managing Partner
Raul Bernal, Senior Associate
Isaacson, Miller
https://www.imsearch.com/open-searches/texas-am-university/director-semiconductor-institute

Electronic submission of application is required.

APPENDIX

Chancellor, The Texas A&M University System

John Sharp was appointed Chancellor of The Texas A&M University System by the Board of Regents on Sept. 6, 2011. Chancellor Sharp leads one of the largest systems in the country with an annual budget of $7.2 billion and an enrollment of more than 152,000 at the A&M System's 11 universities. Additionally, under the System umbrella, there are eight state agencies. Chancellor Sharp brings with him more than three decades of public service. He earned a bachelor's degree in political science from Texas A&M University in 1972, where he was a member of the Corps staff of the Corps of Cadets, a member of the 1972 rugby team, and was elected student body president. Upon graduation, Sharp was commissioned as a second lieutenant in the United States Army Reserve. In 1976, Sharp received a master's degree in public administration from Southwest Texas State University while working full-time with the Legislative Budget Board in Austin. In 1978, he opened a one-man real estate firm in Victoria and became a successful small business owner. That same year he was elected to the Texas House of Representatives. In 1982, he won a seat in the Texas Senate, and four years later, he was elected to the Texas Railroad Commission. He also was elected state comptroller in 1990 and re-elected in 1994.

Interim President, Texas A&M University

General (Ret.) Mark A. Welsh III was named interim president of Texas A&M University on July 30, 2023. He previously served as dean of the Texas A&M Bush School of Government and Public Service after retiring from the U.S. Air Force. Welsh, who was born in San Antonio, earned a Bachelor of Science degree from the U.S. Air Force Academy and a Master of Science degree in computer resource management from Webster University, and graduated from the Army Command and General Staff College, the Air War College and the National War College. He was a fellow of Seminar XXI at the Massachusetts Institute of Technology, a fellow of the National Security Studies Program of Syracuse University and Johns Hopkins University, a fellow of Ukrainian Security Studies at the John F. Kennedy School of Government at Harvard University, a fellow of the Pinnacle Course of the National Defense University and a graduate of the General Manager Program at the Harvard Business School. During his long military career, he received numerous awards and decorations, including the Defense Distinguished Service Medal with oak leaf cluster, Distinguished Service Medal with oak leaf cluster, Defense Superior Service Medal with oak leaf cluster, Legion of Merit with oak leaf cluster and Distinguished Flying Cross with oak leaf cluster.

Vice Chancellor for Research, The Texas A&M University System

Dr. Joe Elabd is the Vice Chancellor for Research at The Texas A&M University System; a system of 11 universities and 8 state agencies with externally funded research expenditures of $1.2 billion annually. As the leader of the A&M System Office of Research, Dr. Elabd is responsible for providing research leadership and services to support all 19 system members and overseas numerous offices and initiatives, including Texas A&M Innovation, National Laboratories Office, Bush Combat Development Complex,

Texas A&M Semiconductor Institute, Texas A&M Space Institute, Texas A&M Fort Worth, the A&M System Research Security Office, the A&M System Research Compliance Office, the A&M System Research Development Office, and the Chancellor's Research Initiative (CRI). Dr. Elabd is also serving as the Interim Vice Chancellor and Dean of Engineering at Texas A&M University and Interim Director of the Texas A&M Engineering Experiment Station. Prior to these role, Dr. Elabd has served in several administrative roles at Texas A&M University, including Associate Dean for Research in the College of Engineering and Associate Department Head of Chemical Engineering. Dr. Elabd is also currently a Professor and the Axalta Coating Systems Chair II in the Artie McFerrin Department of Chemical Engineering at Texas A&M University. He is a Fellow of the American Physical Society and served as a Senior Fellow at the Instituto di Studi Avanzati, Università di Bologna and a Scholar in Residence at the Food & Drug Administration. He has received numerous research awards including the NSF CAREER Award, the ARO Young Investigator Award, and the DuPont Science and Engineering Award. His research focuses on electrochemical energy (batteries, capacitors, fuel cells) and materials and polymer science. Dr. Elabd has taught chemical engineering courses at all levels (freshmen, sophomore, junior, senior, and graduate). Dr. Elabd received his Ph.D. and B.S. both in chemical engineering from Johns Hopkins University and University of Maryland, Baltimore County, respectively, and was a National Research Council Postdoctoral Fellow at the U.S. Army Research Laboratory.

Interim Director, Texas A&M Semiconductor Institute

David Staack serves as Associate Vice Chancellor for Research and Interim Director of the Texas A&M Semiconductor Institute. He received the B.S. and M.S. degrees in aerospace engineering from the University of Virginia, Charlottesville, in 2000. As an undergraduate he worked with building virtual worlds for the Stage 3 research group at UVA and Carnegie Mellon. In his graduate work at UVA his thesis research was on developing and using LIF techniques for the diagnostics of interacting rarified and continuum flows, and the Ph.D. degree from the Drexel University, Philadelphia, PA, in 2008, where his research focused on the characterization of atmospheric-pressure non-thermal plasmas and the use of such plasmas for plasma-enhanced chemical vapor deposition, biomedical applications, and fuel reforming. From 2000 to 2004, he completed his graduate work with Princeton University, Princeton, NJ, where he was with the Princeton Plasma Physics Laboratory studying the effects of plasma surface interactions on the performance of Hall thruster rocket engines and developing plasma diagnostics. He joined the faculty of the Department of Mechanical Engineering at Texas A&M University in 2009. His current research interests include plasma engineering applications of micro- and nano- scale plasmas at various pressures and in various media, and plasma discharge and flow diagnostics.