Stanford

Lydia J Young

Research Technical Manager 3, SLAC National Accelerator Laboratory

Bio

BIO

Lydia J. Young, Ph.D. has over 25 years of industry experience developing complex semiconductor and flat panel display capital equipment, and served in the full range of career roles from individual contributor, technical program/product manager, engineering line manager, vice president of technology, chief technical officer, and general manager. She has led cross-functional and multi-disciplinary matrixed and line R&D, engineering, manufacturing and technical field support staff in the development and launch products in electron beam lithography, plasma RF chemical vapor deposition, wafer and flat panel inspection, CCD camera technologies, laser direct write/deposition. Her technical breadth is demonstrated by the 14 U.S. patents she holds in four of these rather disparate fields. This technical breadth is combined with extensive operations and project management experience. She has developed product life cycle processes combining engineering development processes with project management, instilled engineering and operations best practices, established reliability and quality programs, and managed intellectual property portfolios. Her only non-technical work experience was at Lawrence Berkeley National Laboratory (LBNL), where she developed its Requirements Management Program including its online policy manual. Interestingly, she was requested to develop LBNL's LCLS-II Quality Assurance Plan for the SLAC LCLS-II Project's undulator systems that LBNL delivered several years later to her SLAC team for installation.

In 2014, Dr. Young moved from LBNL to SLAC to become the Mechanical Engineering and Technical Services (METS) Division Director in the Accelerator Directorate. This division provides mechanical design engineering, fabrication, assembly, metrology, and field support to projects throughout the laboratory. From 2015 through 2021, she led the 180 METS staff in the manufacture and subsequent installation of the massive volume of materials that now comprise the nearly 2 miles of the LCSL-II accelerator's warm and superconducting cryogenic beamline.

Dr. Young served as SLAC's Chief Engineer from 2021 to 2023 concurrently with her positions in the Accelerator Directorate. Key deliverables during this period were improvements to the engineering classification matrix, a significant revision to the lab's Conduct of Engineering Policy, and formal assurance assessments of the lab's engineering organizations.
In 2023, Dr. Young assumed the Deputy Director for Engineering in the Accelerator Directorate. In addition to line management, Dr. Young has responsibility for the budget for LCLS Accelerator Operations, the Directorate's risk management program and its resource management processes. She has developed and conducted training on HPI (Human Performance Improvement) as a companion to work planning and control practices for field and shop execution; on configuration management as a necessity for operational safety to people and equipment; on project management for scientists and engineers; and on conduct of engineering practices. She is the author of the Accelerator Directorate's Conduct of Engineering implementation plan.

Dr. Young has served on DOE project review committees at SLAC and other labs including LSST, Super CDMS, CBXFEL, and LCLSII PIP-II, DUNE, ALS-U, SNS/HFIR, TUNL; nEXO; Pu@pRAD; NSLS-II; and PPPL engineering. She served in the lab's Project Management Assurance Group for over 6 years.

Since her college years and well before the acronym “STEM” became popular, Dr. Young has been a staunch advocate for encouraging young girls and women to become part of the women in STEM communities, participating in local workshop programs and providing women-in-STEM talks at local community colleges. At SLAC she is a long-standing participant in the SAGE program, Family Days, and Green Scholars program. Dr. Young has been a mentor in SLAC’s mentorship program since 2017

CURRENT ROLE AT STANFORD

Deputy Associate Laboratory Director of Engineering in the Accelerator Directorate at SLAC, with responsibility for the four Accelerator Division engineering divisions: METS, Electronics Engineering (EED), Cryogenics, and Safety Systems Engineering, whose combined total staff size is approximately 300 and facilities include the mechanical, metrology, electrical shops and the superconducting accelerator’s cryoplant

HONORS AND AWARDS

- Alumnae Achievement Award, Mount Holyoke College (2020)
- Director’s Award in Engineering, SLAC National Accelerator Laboratory (2016)
- Silicon Valley Tribute to Women and Industry (TWIN) award, YWCA (2005)

EDUCATION AND CERTIFICATIONS

- US Patent Agent, ..
- PhD, Cornell University , Nuclear Science and Engineering
- MS, Cornell University , Applied Physics
- BA, Mount Holyoke College , Physics

PATENTS

- Auyeng, R., Pique, A, Bailey, T. H., Young, L. J.,. "United States Patent 8,728,589 Laser Decal Transfer of Electronic Materials", Photon Dynamics, May 20, 2014
- Birrell, S., Cable, A., Visser, J., Young, L. J., Kwak, J., Eldring, J., Bailey, T. H., Pique, A., Auyeng, R.,. "United States Patent 8,025,542 Deposition Repair Apparatus and Methods", Photon Dynamics, Sep 27, 2011
- Rosengaus, E., Young, L. J.. "United States Patent 7,072,034 Systems and Methods for Inspection of Specimen Surfaces", KLA, Jul 4, 2006
- Young, L. J., Pacak, V.. "United States Patent 5,903,106 Plasma Generating Apparatus Having an Electrostatic Shield", Watkins Johnson, May 11, 1999
- Young, L. J., Matthiesen, R, Selitser, S., van Os, R. "United States Patent 5,851,294 Gas Injection System for Semiconductor Processing", Watkins Johnson, Nov 22, 1998
- Veneklasen, L. H., Young, L.J.. "United States Patent 5,838,006 Conical Baffle for Reducing Charging Drift in a Particle Beam System", Etec Systems, Nov 17, 1998
- Lydia Young. "United States Patent 5,136,166 Thermally Stable Magnetic Deflection Assembly", Etec Systems, Aug 4, 1992
- Lydia Young. "United States Patent 5,012,104 Thermally Stable Magnetic Deflection Assembly and Method of Making Same", Etec Systems, Apr 30, 1991
- Lydia Young. "United States Patent 4,966,787 Method of Creating Isolated Plates on Inside Surface of a Metallized Substrate", Etec Systems, Oct 30, 1990
- Dean, R., Young, L. J., Veneklasen, L.H.. "United States Patent 4,956,024 Non-contacting Method of Cleaning Surfaces with a Planar Gas Bearing", Etec Systems, Sep 11, 1990
- Lydia Young. "United States Patent 4,885,472 A Silicon Grid as a Reference and Calibration Standard in a Particle Beam Lithography System", Etec Systems, Dec 5, 1989
- Young, L. J., Howard, G.E.. "United States Patent 4,837,443 Guard Ring for a Differentially Pumped Sealed Apparatus", Etec Systems, Jun 6, 1989
- Young, L. J., Veneklasen, L. H.,. "United States Patent 4,818,838 Apparatus for Preselecting and Maintaining a Fixed Gap between a Workplace and a Vacuum Seal Apparatus in Particle Beam Lithography Systems", Etec Systems, Apr 4, 1989
- Lydia Young. "United States Patent 4,792,688 Differentially Pumped Sealed Apparatus", Etec Systems, Dec 20, 1988