

Keynote Speech: **Collaborate to Overcome New Design Complexity Barrier**
Dr. Shauh-Teh Juang, Senior Director TSMC

About the Speaker

ST Juang joined TSMC as Senior Director in September 2007. He is in charge of the Design Infrastructure Marketing Division currently. Prior to joining TSMC, ST was Senior VP of Marketing and Business Development at Brion Technologies, a leading supplier of computational lithography products. He brought Brion from a startup to a successful global operation in 4 years and sold the company to ASML. Before Brion, ST was VP of Corporate Business Development, and VP of Marketing and Worldwide Sales and VP of Engineering of Mask Inspection Division at KLA-Tencor. His prior experience also includes 11 years at Bell Laboratories in the areas of ECAD, mask design, mask manufacturing, lithography simulation and yield management. ST received his B.S. in Electrical Engineering from National Taiwan University and his M.S. and Ph.D. in Electrical Engineering from University of Pennsylvania.

Abstract

The semiconductor industry today faces a new design complexity barrier. Convergence of product features brings unprecedented complexities on process technology, architectural and gate-count. Integration and cost drivers bring 3-D stacking with through-silicon vias. Heterogeneity brings high voltage devices, image sensors, and MEMS into a single product design optimization. From IP migration, to variability modeling and mitigation, to NRE cost, the new paradigm is that these are no longer discrete issues addressable by point tool solutions. Overcoming this new design complexity barrier requires breakthrough technologies and integrated EDA solutions.

Funding the development of new EDA solutions must make business sense. But while traditional ROI assessments are based on "one company-centric" business models, the next stage of the industry's evolution requires ROI and business models that acknowledge co-existence, and even collaboration, of multiple companies. This is especially true during this unprecedented worldwide financial earthquake. A win-win-win future will depend on emergence of an innovative business model that is realized collaboratively by key players across the IC design and manufacturing ecosystem. Fortunately, recent initiatives have the promise to meet this need.