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TECHNOLOGY CAD

TECHNOLOGY MODELING ASSOCIATES, INC.

TMA's Newsletter on Developments in Semiconductor Technology Simulation

# Major Improvements for Two TCAD Tools

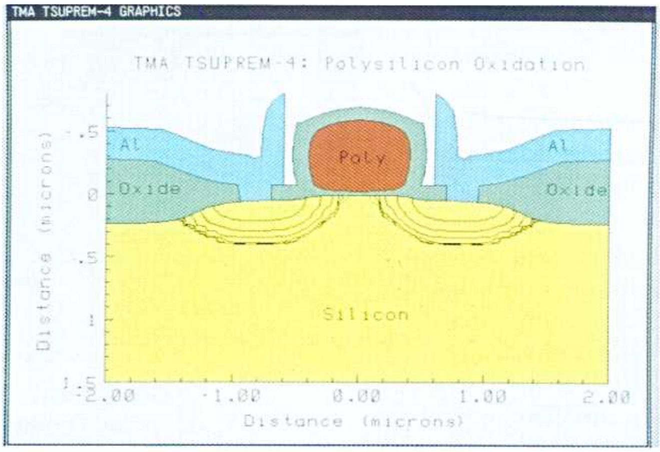
## TOPEX gets BSIM Modeling, better 'Strategy' Language...

New functional features and improved usability will be part of the newest release of TOPEX, TMA's tool for parameter extraction, expected to be available in May 1990. Among the enhancements is an improved "strategy language" and the addition of BSIM as a standard device model, in addition to the Berkeley MOSFET and bipolar SPICE transistor models already featured.

"One of the major strengths of TOPEX is its powerful parameter extraction strategy language," said Fred Wahl, the lead developer for TOPEX. "Even difficult models can be made to yield usable parameters." With this strategy language the user can pick which parameters to extract and in what sequence. Subsets of data affecting particular parameters may be selected separately for the extraction of those parameters.

Other functionality enhancements in this newest release of TOPEX include improved flexibility in model development. A user can plot and study model behavior interactively, providing greater understanding of the model. The user can also code his own models, including devices other than transistors.

Global parameter optimization has also been improved to handle up to 60 parameters simultaneously — double the previous capacity.



*This oxidation of a polysilicon region demonstrates a new capability of TSUPREM-4. Not shown is the effect of oxide stress, although that feature is a part of the new release.*

## ...while TSUPREM-4 now has Poly Oxidation, Monte Carlo

The newest release of TMA TSUPREM-4 will include several new enhancements. Two of the most notable are the ability to model ion implantation with the physically based Monte Carlo method, as well as the ability to model polysilicon oxidation.

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*FRESH FACES–TMA's new engineers include (l-r) Roger Moen, Terry Ma, Greg Rollins, William Tseng, Fred Wahl and Doug Bernard.*

## Development, Support Staff Added

Five engineers have joined TMA's staff to continue enhancement of TMA's traditional offerings, work on development of new products and provide technical support.

**WILLIAM TSENG**: William joined TMA in July 1989 and is the lead developer of our new three-dimensional device modeling tool. William holds a BS degree in physics and an MS in computer science, both from Stanford University.

**FRED WAHL:** Fred came to TMA in January 1990 to assist in the ongoing development of TOPEX, our parameter extraction tool. He comes to TMA from Signetics, where he most recently was involved in semiconductor characterization support and

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