

4^d European HICUM Workshop

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http://www.iee.et.tu-dresden.de/iee/eb/eb_homee.html

About this workshop ...

Goal: forum for "free" discussion and exchange of information between users and developers

- discussion of technical questions related to HICUM (and bipolar transistor modeling)
 - model development (physical background, limitations...) and recommendations for enhancement
 - simulator implementation, bugs and fixes, availability
 - parameter determination methods, extraction methodologies
 - test structures
 - presentation of results and solutions by users and developers
 - measurement issues, equipment requirements and options
- industry meets students
- expectation from and role of model developer at a university ...
- emphasis is on technical discussion and background information
 - as opposed to "productization" and political discussions
 - for clarification see slide on model support issues

Discussion session(s)

- existing solutions - summary: what works well and what doesn't
 - process dependence of model features and extraction methods
- missing procedures (suggestions/priorities for development)
 - e.g. is a common extraction procedure acceptable / desirable ?
- geometry scaling issues
 - non-standard scaling: physical causes, possible ways for elimination, potential implications
- test structure issues:
 - e.g. is a common set of test structures desirable ?
- case studies
 - e.g. demos

Model "productization"

- CMC has
 - considered bipolar models since 1998
 - since then caused *significant* effort for developer(s) for satisfying (changing) requirements
 - not financially supported above efforts
 - decided to start supporting HICUM in 2004 with limited amount of US\$ 50k
- EDA industry (see slide with model availability) has
 - been demanding *significant* effort/resources for supporting implementation
 - not financially supported above efforts (except Agilent in 2000)
 - offered/provided some software donations (e.g. Cadence, Mentor, AWR, ...)
- foundries
 - have financially supported mainly model development (but productization only to a small extent)
- design houses
 - expect quality "models" to be included in design kit and associated cost
 - have demanded some effort/resources for supporting model related questions

=> significant demand but little willingness for financially supporting required productization effort

Model development at universities

- task/work *must*
 - have sufficient research (theory and experiment) contents to qualify for theses
 - not be service-type of work competing with existing companies to avoid law suits (cost dumping)
- implementation of results
 - can only be for demonstration purposes
 - *must not require* significant manpower (examples: GUI, coding in *several* simulators, ...)
 - cannot use cost- or manpower-intensive EDA tools
- release/deployment *must not require*
 - significant maintenance (including, e.g., legacy issues, extensive versioning effort)
 - to be forced into legal obligations and responsibility for functionality other than for developed case
 - to be forced to disclose IP into public domain in violation of existing laws for inventions

