Preliminary Questions for Working Group 3: Crosscutting tools

Design-exploration tools

1. Cross-layer incomplete and hard even in electrical (device to software) – how to add photonics?
2. How to scale the simulation capability and maintain cycle-instruction/level accuracy (congestion models, etc).
3. How to define models and applications – can we standardize the component model and tool libraries and keep them up-to-date?
4. Multi-view models
5. Benchmarks not adequate for good system characterization – esp to show what optics or other emerging tech can do (i.e. designing tomorrow’s machine with yesterday’s benchmarks)
6. Tools that help in application mapping
7. Can the scaling numbers/component models be made more available and centralized?

Physical-design and System-design tools

1. Verilog A tools designed (human coded) capture behaviors; o.k. for system-level design and some ckt design
2. Can we do easier compact modeling – is this a big gap or we first need device standardization? How to couple and scale a number of photonic and active semiconductor tools to build a device?
3. Need efficient platform-level accurate simulators for system effects
4. Synthesis tools challenges across levels of hierarchy.