# HPC Matters

# SC16

2016 Chair
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## 2016

**Top-ten supercomputers:**
- Sunway TaihuLight
- Tianhe-2A
- Titan
- Sequoia
- Cori
- Oakforest- PACS
- K Computer
- Piz Daint
- Mira
- Trinity

**Notable systems mentioned in top cited papers:**
- Titan
- Blue Water
- Jaguar

**Notable processors/ architectures:**
- Stratix V FPGA

**Notable HW/SW architecture topics:**
- Trillion-edge graph processing
- Energy efficiency
- Reliability
- Error resilience

**Notable application areas:**
- SC Reproducibility Initiative
- Compiler-based AMR Code
- Scalable atmospheric and earthquake modeling

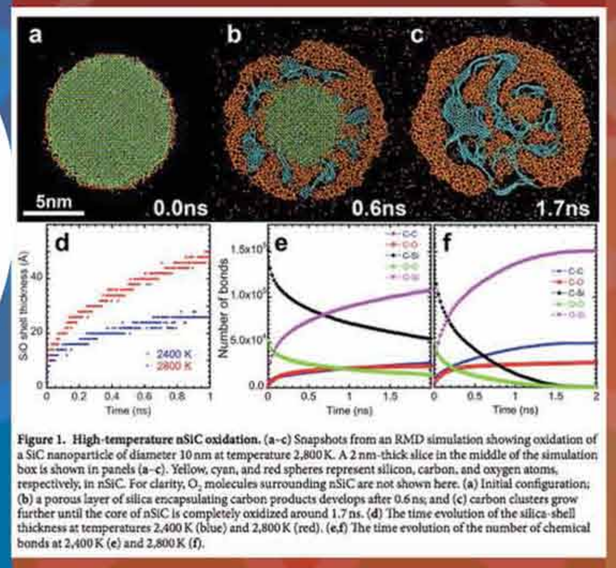


**Figure 1. High-temperature nSiC oxidation.** (a–c) Snapshots from an RMD simulation showing oxidation of a SiC nanoparticle of diameter 10 nm at temperature 2,800 K. A 2 nm-thick slice in the middle of the simulation box is shown in panels (a–c). Yellow, cyan, and red spheres represent silicon, carbon, and oxygen atoms, respectively, in nSiC. For clarity, $O_2$ molecules surrounding nSiC are not shown here. (a) Initial configuration; (b) a porous layer of silica encapsulating carbon products develops after 0.6 ns; and (c) carbon clusters grow further until the core of nSiC is completely oxidized around 1.7 ns. (d) The time evolution of the silica-shell thickness at temperatures 2,400 K (blue) and 2,800 K (red). (e,f) The time evolution of the number of chemical bonds at 2,400 K (e) and 2,800 K (f).

(a) Approach (b) Impact (c) Aftermath