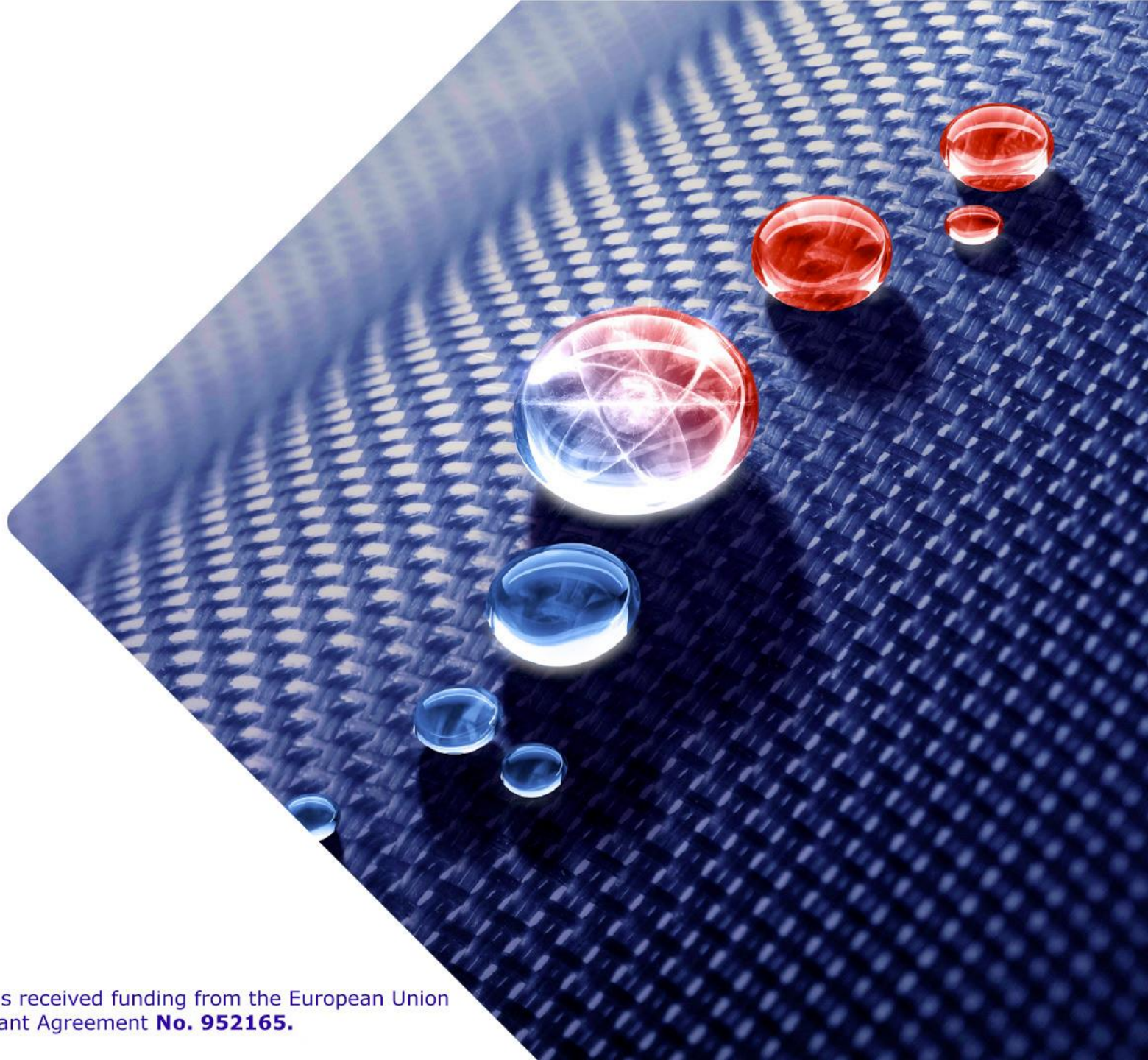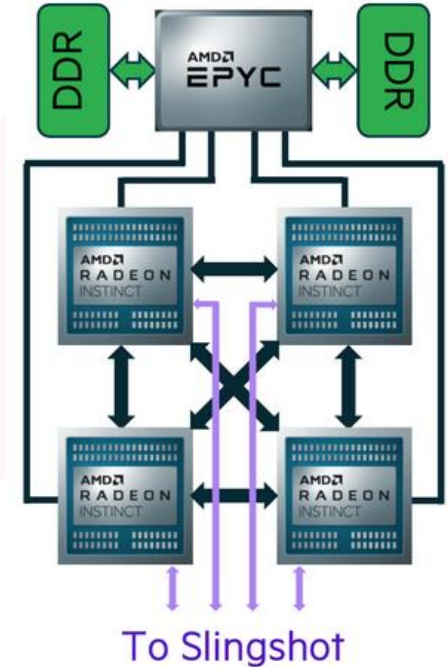# HPC Trends

Dirk Pleiter

What you think are the important change in trends?

To Slingshot

× Consolidation of a set of upcoming exascale architectures

× Dominating swim lane
  × Fat nodes with 1-2 CPUs and 4-6 GPUs
  × Dragonfly-type network topologies

× Alternatives
  × Thin nodes with special CPUs (Fugaku@RIKEN)
  × Less fat nodes with 1 CPU + 1 GPU (Alpes@CSCS)
   × NVIDIA Grace is based on Arm

What you think are the important change in trends? (cont.)

× Transition of HPC resource providers to e-infrastructure service providers
  × Trends towards increasing support of virtualisation
  × Provisioning of private cloud instances is becoming standard

What are the (initial) lessons learned through TREX codes?

× Potential for excellent mapping on current and upcoming CPU architectures
   × Exploitation of large number of (simple) cores + large caches
   × Lacking asynchronicity currently limits exploitation
× Early understanding of potential of exploiting GPU architectures
   × Need better control on managing data
× Remaining challenges in improving deployment and portability
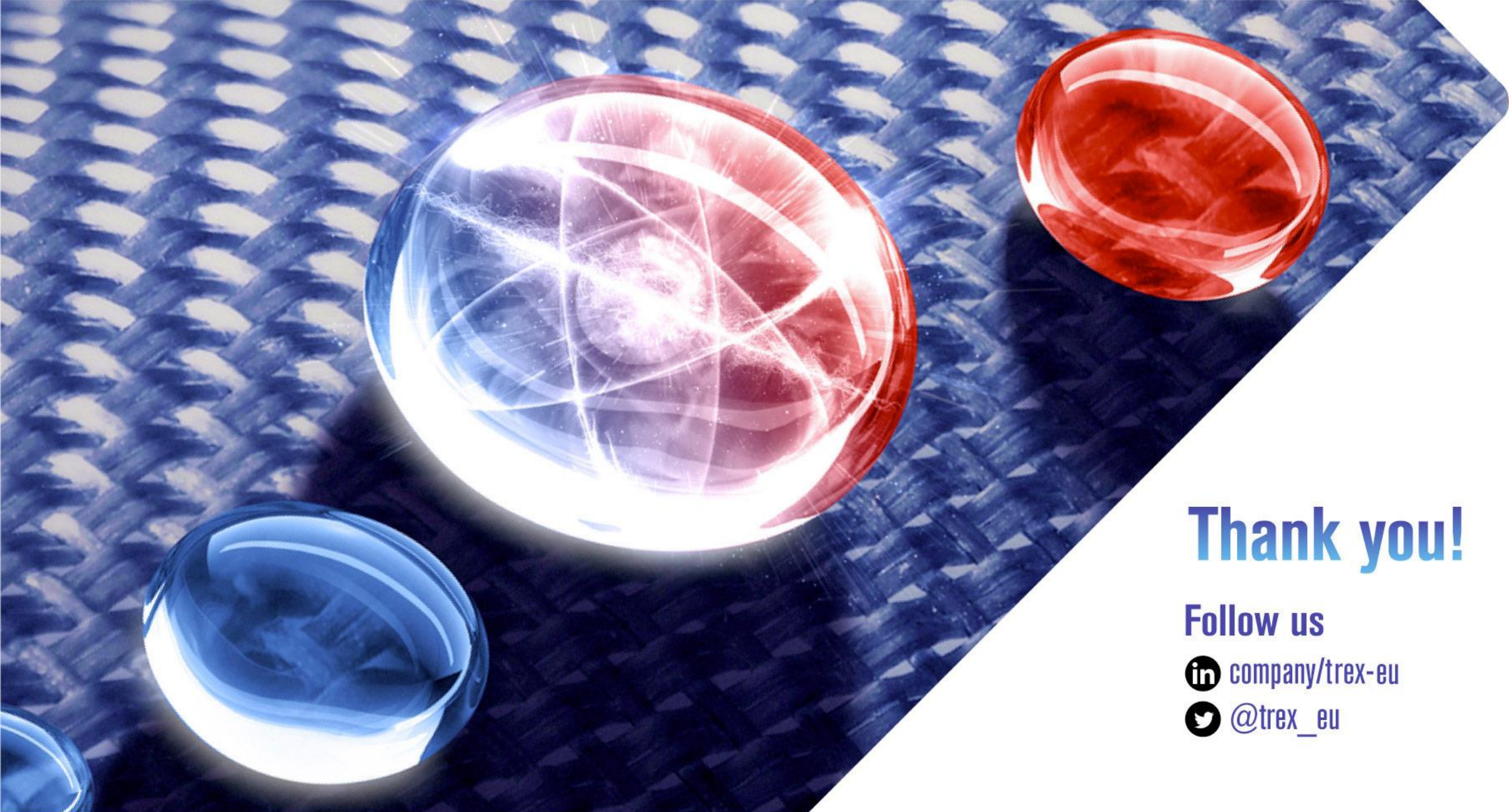
Thank you!

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Targeting Real chemical accuracy at the EXascale