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🟡 Free Surface Fluids with the Lattice Boltzmann Method (LBM):

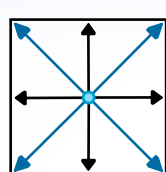
Lattice Boltzmann:

- Similar to Cellular Automata
- Regular Grid & discrete Velocities
- Optimized Implementation possible

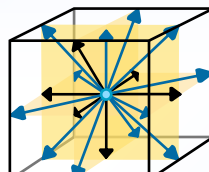
Free Surfaces:

- Distinguish Empty, Fluid and Interface Cells
- Boundary Conditions and Surface Tracking are handled at the Interface:

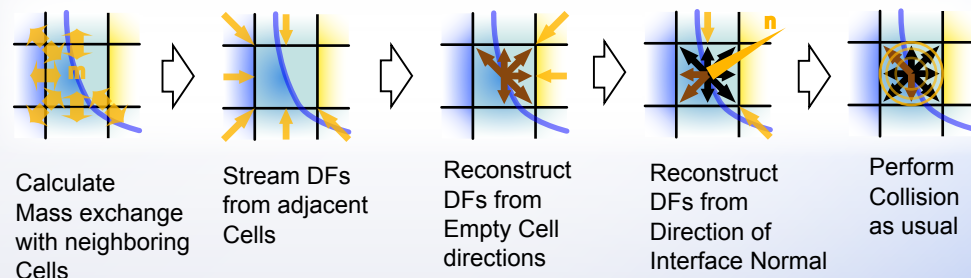
The common LBM Models in 2D/3D:



D2Q9



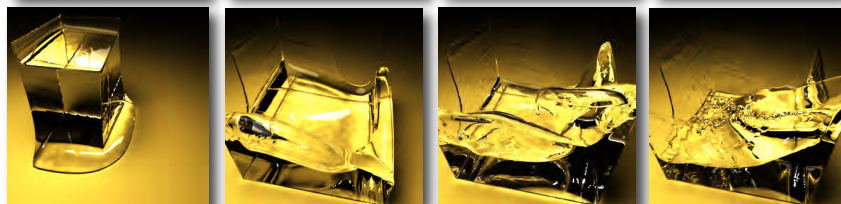
D3Q19



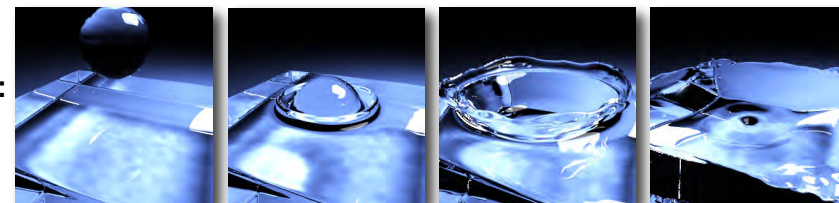
Unoptimized:
(on average
76s / frame)



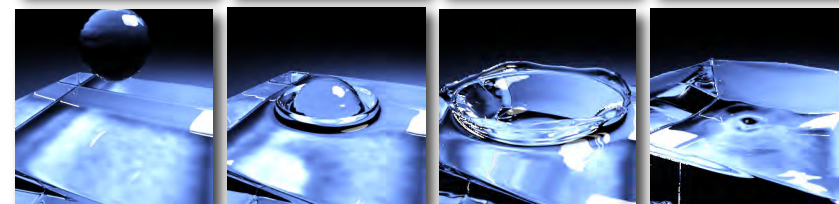
Optimized:
(on average
37s / frame)



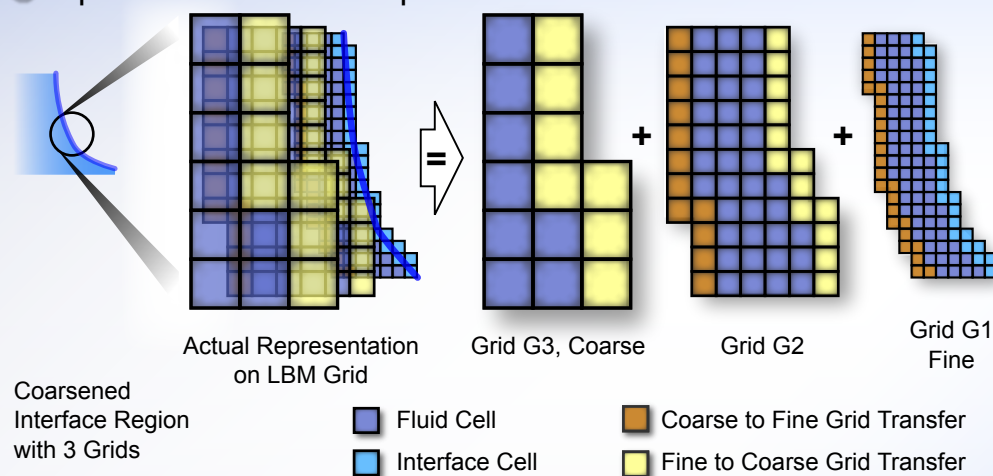
**Unoptimized:
(on average
69s / frame)**



Optimized:
(on average
24s / frame)



🟡 Optimizations with Adaptive Grids:



Time Stepping:

