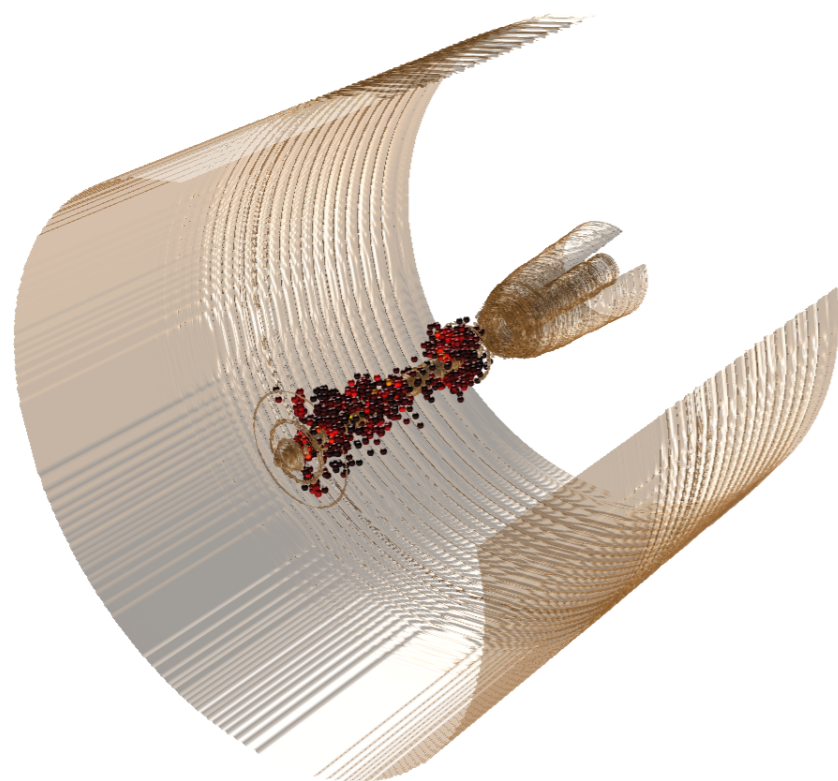


Particle acceleration by laser pulses



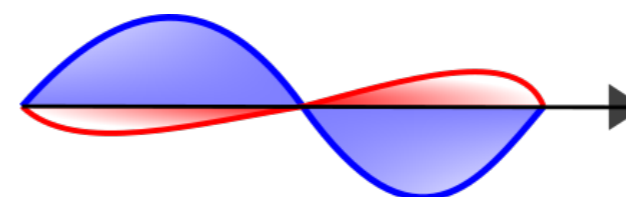
Conventional accelerators need several kilometers to accelerate particles to high energies.

Using the combination of **intense laser pulses** and plasma might shorten the distances to a few meters and make acceleration more available

Laser-plasma modelling

Analytical solutions are possible only for very simplified scenarios - numerical simulations are necessary

Particle-in-cell codes are used for the description of plasmas



Electromagnetic fields are solved on the mesh using Maxwell equations

Particles move freely in space according to the fields at their position

