

ASTRAPÉ

Atmospheric STReamer And relativistic
Particle Engine

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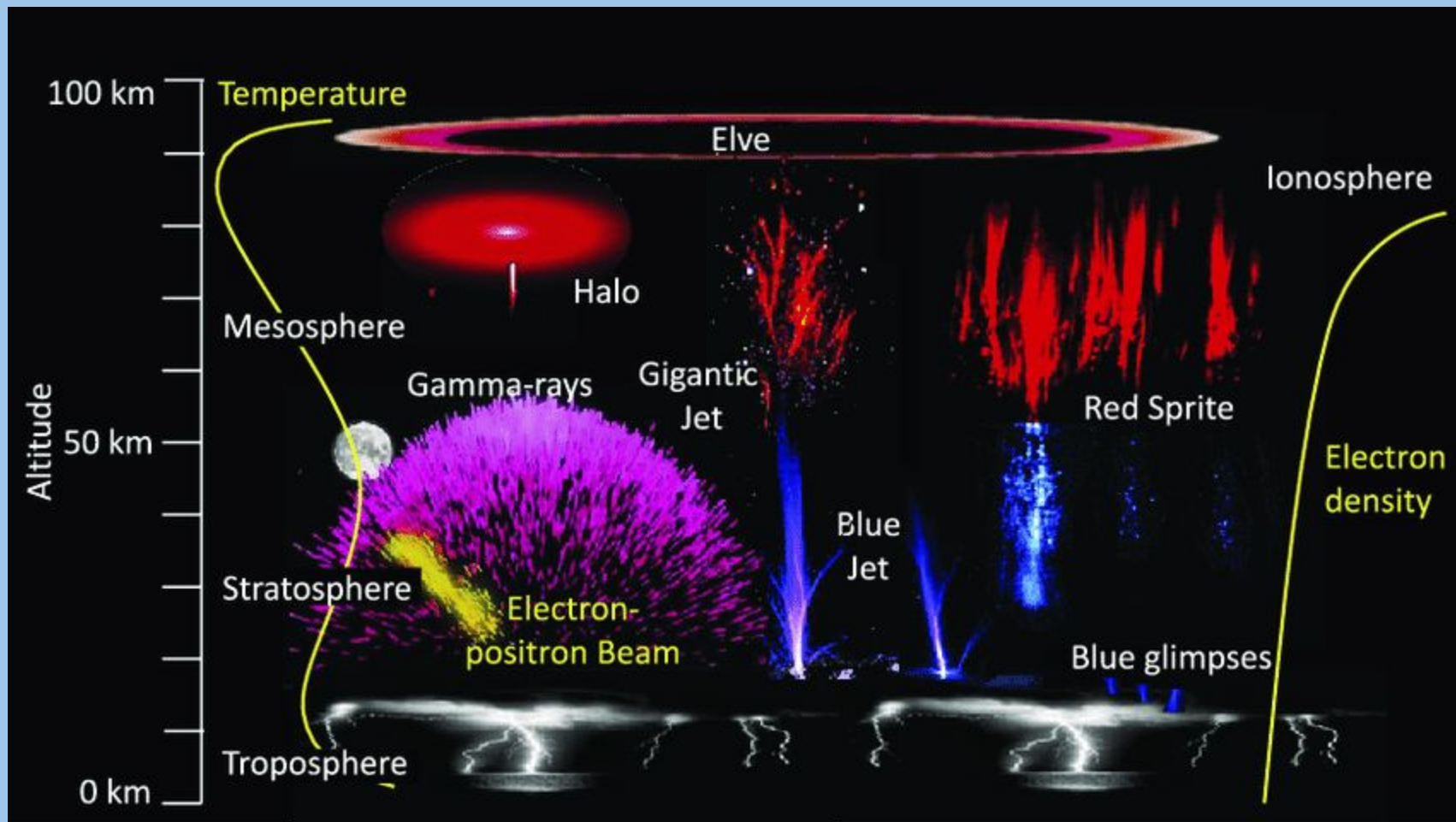
Pierre Gourbin



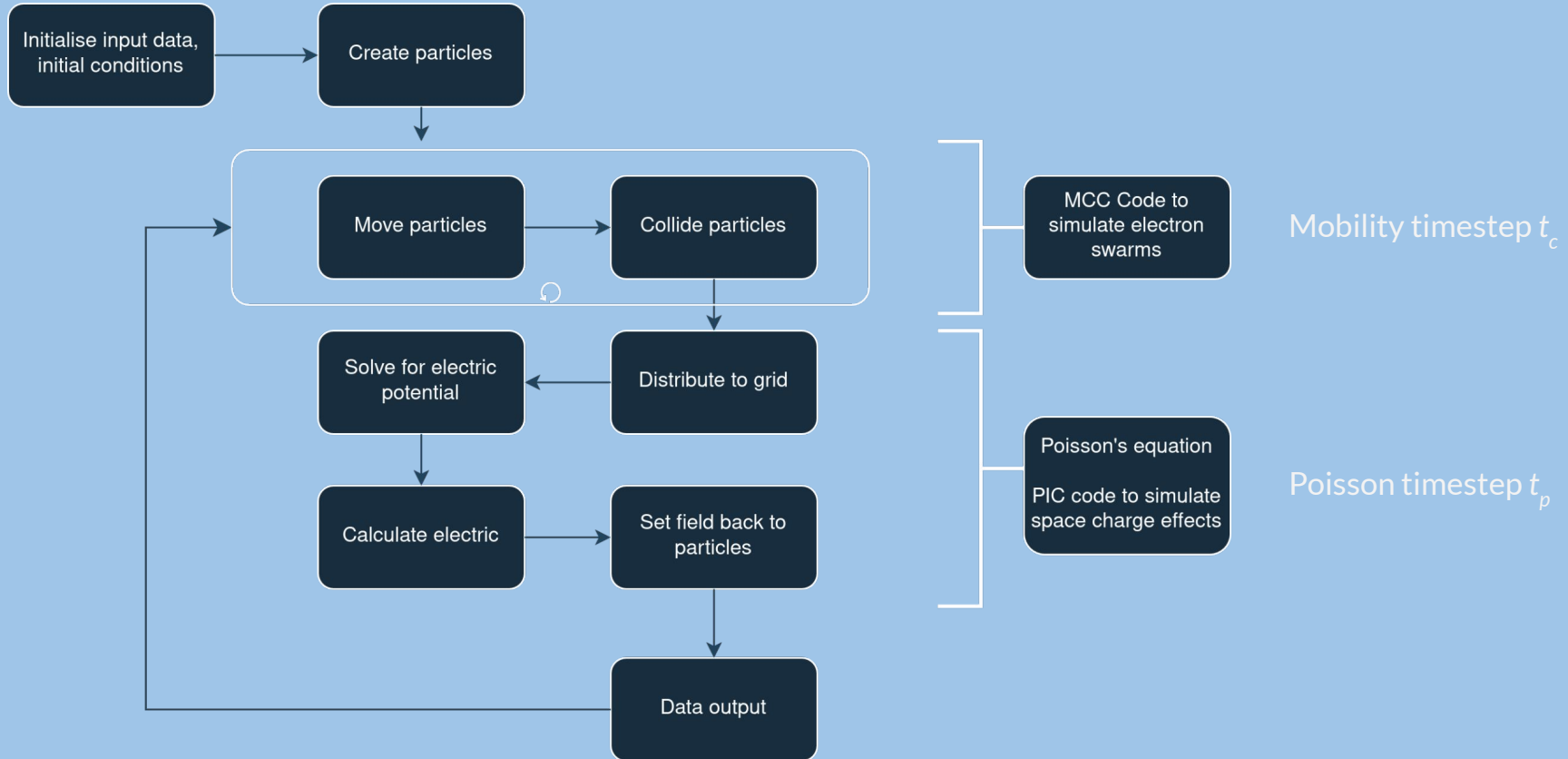
The lightning strike



First streamers, then the strike

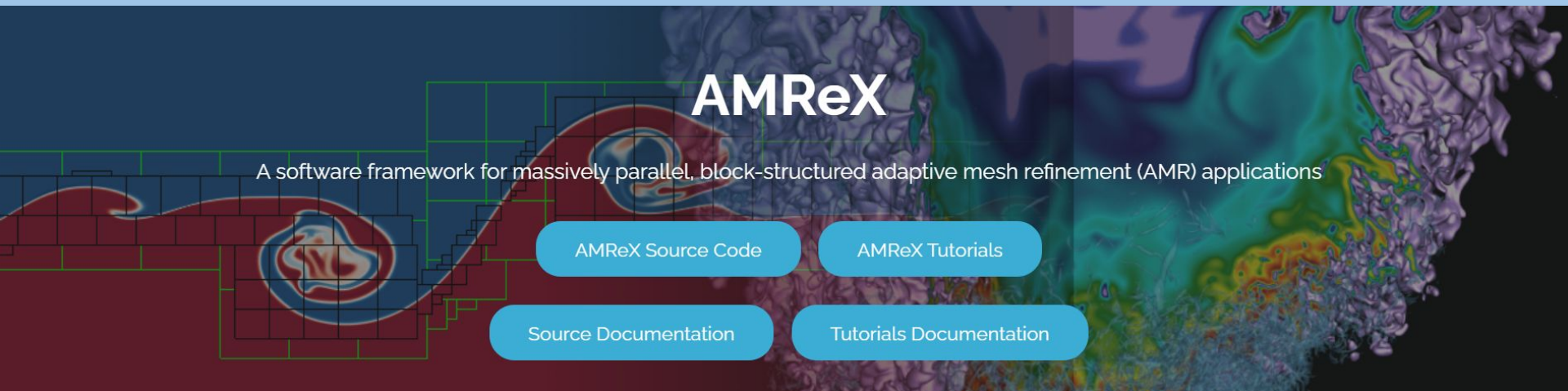


A Monte Carlo model for streamer physics



Streamer code GPU implementation

→ Swarm code + third-party equation solver (AMReX) + some additional physics



Swarm code implementation

OpenMP offload or HIP

1 LUMI GCD

Both distribute individual particles to threads

OpenMP is used for CPU-based processes in **both** implementations

