



Simulating the Nonlinear Klein-Gordon-Maxwell System in the Relativistic Limit with Mimetic Differences

Hayden Frye and Miguel A. Dumett

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**SAN DIEGO STATE
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Computational Science Research Center
College of Sciences
5500 Campanile Drive
San Diego, CA 92182-1245
(619) 594-3430



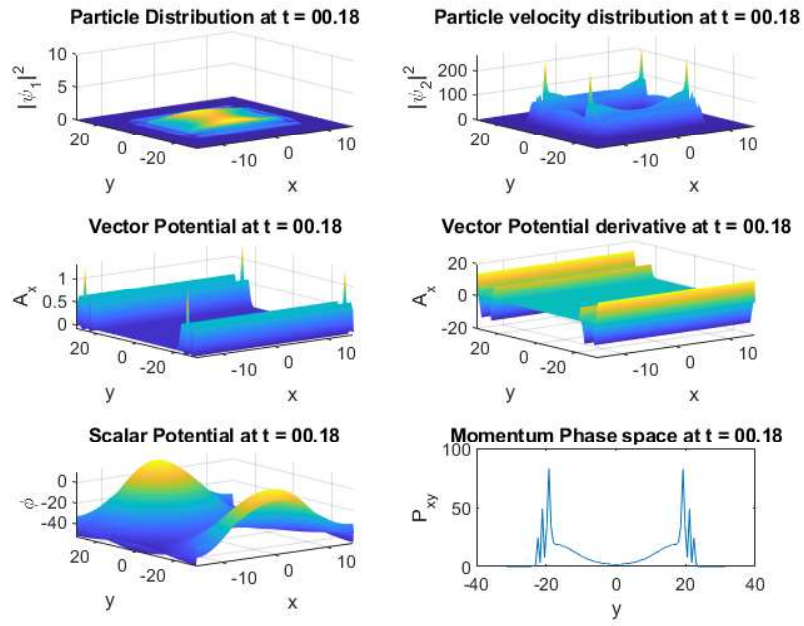


Figure 2: Results at $t = 0.18$ of simulation time with a time step of 0.015. The results show the solutions

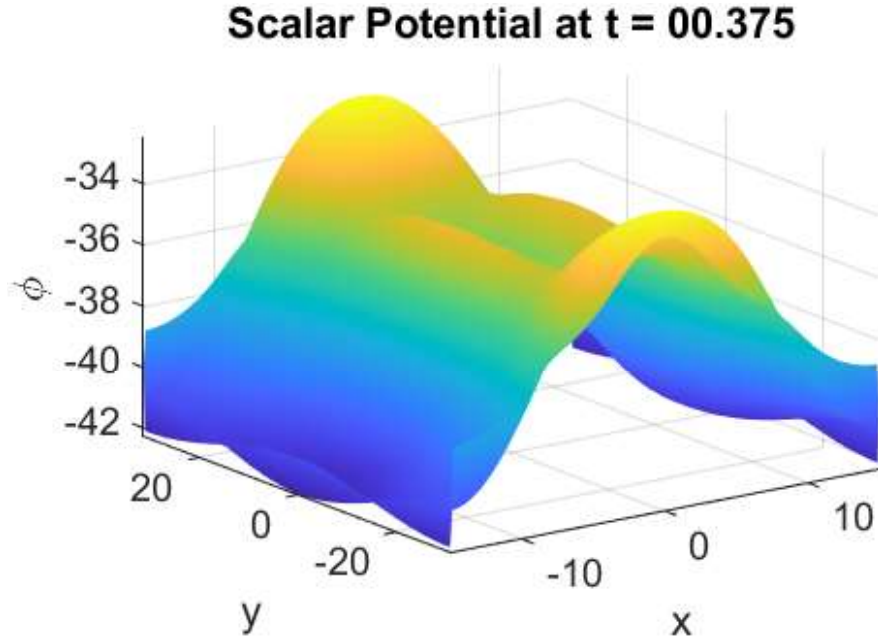


Figure 4: Saddle points in the potential energy due to the self-consistency of the particle distribution.

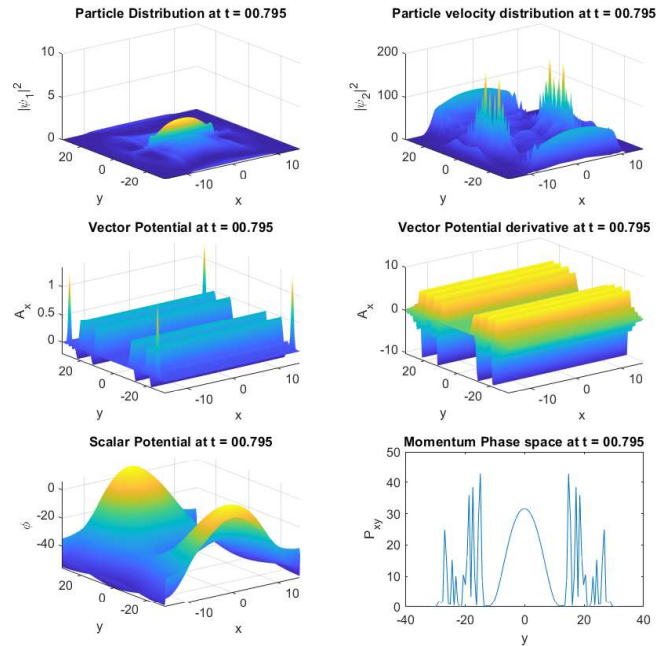


Figure 5: Simulation results showing a spike in particle velocity following the wake of a CPEM wave vector potential. The phase space momentum plot shows a spiking that is reminiscent of the 1D results of [2] where the momentum has a smooth middle part with a sharp and jagged outer part due to the nonlinearity of the system.

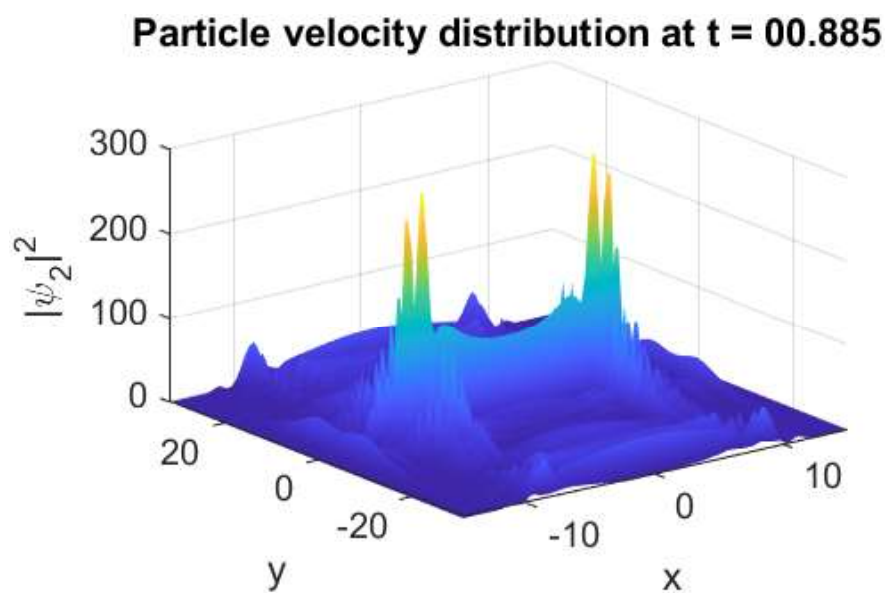


Figure 6: Particle velocity distribution showing nearly the maximum velocity the particles reach before slowing down again.