An explicit structure-preserving numerical scheme for EPDiff

We present a new structure-preserving numerical scheme for solving the Euler–Poincaré Differential (EPDiff) equation on arbitrary triangle meshes.

Unlike existing techniques, our method solves the difficult non-linear EPDiff equation by constructing energy preserving, yet fully explicit, update rules.

Our approach uses standard differential operators on triangle meshes, allowing for a simple and efficient implementation.

This work is jointly done with Miri Ben-Chen and Omri Azencot.