

Periodic Constant Nonlocal Mean Curvature curves and surfaces

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We present recent results on the existence of critical points of the nonlocal (or fractional) perimeter functional under volume constraints. These critical points are called sets with Constant Nonlocal Mean Curvature (CNMC). Since the only bounded CNMC set is the ball, we will consider unbounded CNMC sets for this talk. These sets bifurcate from parallel cuves, parallel planes, cylinders and translation invariant lattices of spheres. The construction of these objects amount to study quasilinear type fractional equations, and local inversion arguments have been the main tool we used to solve these equations.

Joint works with X. Cabrè, J. Solà-Morales and T. Weth.