

ON THE SINGULAR SET FOR MEAN CURVATURE FLOW OF HYPERSURFACES

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We consider smooth, properly immersed n - dimensional hypersurfaces evolving by mean curvature in some open subset of Euclidean space on some time interval. Such hypersurfaces will usually develop singularities after some finite time. These are points near which the curvature blows up, so that the solution cannot be extended beyond this time. We discuss many examples where singularities of various types form.

We then survey a number of results which provide information about the dimension of the first singular set which forms and about the asymptotic shape of the solution near singularities. The main part of the talk will be centred around some recent work which derives optimal estimates for the dimension of the first singular set for several interesting classes of solutions. The main technical tool is an analytical result which states that if the norm of the curvature of the solution is integrable with an exponent p , then the first singular set must have $n+2-p$ - measure equal to zero.