

J.J.L. Velazquez in 1994 used the degree theory to show that there is a perturbation of Simons' cone, starting from which the mean curvature flow develops a type II singularity at the origin. He also showed that under a proper time-dependent rescaling of the solution around the origin, the rescaled flow converges in the C^0 sense to a minimal hypersurface which is tangent to Simons' cone at infinity.

In this talk, we will present that the rescaled flow actually converges locally smoothly to the minimal hypersurface, which appears to be the singularity model of the type II singularity. In addition, we will show that the mean curvature of the solution blows up near the origin at a rate which is smaller than that of the second fundamental form. This is a joint work with N. Sesum.