Blowup in infinite time for 2D Smoluchowski-Poisson equation

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We study the Smoluchowski-Poisson equation in two space dimensions. For this equation collapses with quantized mass are formed in finite time. Concerning the blowup in infinite time it was known that formation of collapses with quantized mass. Here we show the residual vanishing. Consequently, blowup in infinite time does not occur unless the total mass is quantized. These collapses move along the gradient flow derived from point vortex Hamiltonian. Related results are also discussed.