Finite-time Blowup of Semilinear PDEs via the Feynman-Kac Representation

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By means of the Feynman-Kac representation, we prove finite-time blowup of nontrivial positive solutions for a class of reaction-diffusion equations in the d-dimensional Euclidean space, where the diffusion term is the generator of the spherically symmetric a-stable process, $0 < a < 2$, and the reaction term is a power non-linearity of exponent $1 + b$ with $b > 0$.