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Oil reservoirs are classified as homogeneous or heterogeneous. The heterogeneous might be naturally fractured with fractal behavior, i.e., its flux, determined by well-testing and commonly described as diffusion process, is anomalous. To describe it, Chang-Yortsos(1990) considering fracture networks geometry and a probabilistic approach to fractals adapted a fractal diffusion equation.

In 1989, Kigami created a “Laplacian” for post-critical finite auto-similar fractals imitating the construction of the classical Laplacian in $[0, 1]$, and leading up to a development of the analogs of some of the classical partial differential equations.

Based on Kigami’s approach and developing numerical simulations, our work shows a comparison between Chang-Yortsos model and the diffusion equation on the Sierpinski Gasket. (Received May 15, 2013)