**SPE 92040:** [**A Hybrid Numerical/Analytical Model of a Finite-Conductivity Vertical Fracture Intercepted by a Horizontal Well**](http://www.spe.org/elibrary/servlet/spepreview?id=SPE-92040-PA)**.**

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**Abstract: This paper presents a** hybrid numerical/analytical model for the pressure-transient response of a finite-conductivity fracture intercepted by a horizontal well. The model dynamically couples a numerical fracture model with an analytical reservoir model. This approach allows us to include finer details of the fracture characteristics while keeping the computational work manageable. For example, the fracture may have irregular shape, nonuniform width, and variable conductivity, and the well may not intersect the fracture at its geometric center.

In this paper, we use the hybrid model to investigate the effects of fracture properties on the pressure-transient characteristics of a single, finite-conductivity horizontal-well fracture. The single horizontal-well-fracture model can be extended easily to multiply fractured horizontal wells by superposition. The model also can be used to compute the pseudoskin caused by the effects of nonideal fracture geometry, variable conductivity, and flow choking around the wellbore and to investigate the influence of fracture properties on the performance of horizontal wells.