FEATURES OF INFLOW OF A LIQUID TO A CHINK IN THE FRACTURED DEFORMED LAYER

Aleroeva H.T.

Moscow Technical University of Communication and Informatics, Russia
Aviamotornaya st. 8a, Moscow, 111024, e-mail: BinSabanur@gmail.com

Let's consider an equation

$$p'(r)\left(\frac{d^{\alpha} p(r)}{dr^{\alpha}}\right)^{2} = a\left(\frac{d^{\alpha} p(r)}{dr^{\alpha}}\right) + b,$$

here

$$\left(\frac{d^{\alpha} p(r)}{dr^{\alpha}}\right)$$

is a derivative of fractional in Caputo sense, of order $0 < \alpha < 1/$ And a, b are defined constants. This equation describes features of movement of oil in the deformed layer [1]. The decision of this equation leaves by means of special power series in particular for $\alpha = \frac{1}{3}$, a solution $p(r)$ obtained like follow series

$$p(r) = c_{0} + c_{1} r^{\frac{1}{3}} + c_{2} r^{\frac{2}{3}} + \ldots + \ldots$$

References

1. T.S. Aleroev. The boundary problems for differential equations with fractional derivatives. // Dissertation, doctor of Physical and Mathematical Sciences, Moscow State University, 2000.