

**NUMERICAL SOLUTION OF ONE-DIMENSIONAL ADVECTION –DISPERSION  
EQUATION WITH REACTION IN A HOMOGENEOUS POROUS MEDIUM USING  
DIFFERENTIAL QUADRATURE METHOD (DQM)**

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**ABSTRACT**

In the present work, one dimensional Advection – Dispersion equation with Reaction in a homogeneous porous medium is solved by using Differential Quadrature Method. Here polynomial based differential quadrature method and fourth order Runge–Kutta scheme for space and time is applied for solving the equation having initial and boundary conditions. Compared to the conventional numerical methods, we obtained accurate solutions for less number of nodes. All computations were carried out using some codes produced in MATLAB. The computed results justify the efficiency of the method.

**KEYWORDS:** Advection, Differential Quadrature Method, Dispersion, Reaction, Runga- Kutta Method, Shu's General Approach.