

## Residual Power Series Method for System of Volterra Integro-Differential Equations

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**Abstract :** This paper investigates the approximate analytical solutions of general form of Volterra integro-differential equations system by using the residual power series method (for short RPSM). The proposed method produces the solutions in terms of convergent series requires no linearization or small perturbation and reproduces the exact solution when the solution is polynomial. Some examples are given to demonstrate the simplicity and efficiency of the proposed method. Comparisons with the Laplace decomposition algorithm verify that the new method is very effective and convenient for solving system of pantograph equations.

**Keywords :** integro-differential equation, pantograph equations, system of initial value problems, residual power series method

**Conference Title :** ICACM 2015 : International Conference on Applied and Computational Mathematics

**Conference Location :** Berlin, Germany

**Conference Dates :** September 14-15, 2015