# New Exact Travelling Wave Solutions of Nonlinear Coagulation Problem with Mass Loss

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This paper suggests a generalized F-expansion method for constructing new exact travelling wave solutions of a nonlinear coagulation problem with mass loss. This method can be used as an alternative to obtain analytical and approximate solutions of different types of kernel which are applied in physics. The nonlinear kinetic equation, which is an integro differential equation, is transformed into a differential equation using Laplace's transformation. The inverse Laplace transformation of the solution gives the size distribution function of the system.

As a result, many exact travelling wave solutions are obtained which include new periodic wave solutions, trigonometric function solutions, and rational solutions. The method is straightforward and concise,and it can also be applied to other nonlinear evolution equations arising in mathematical physics.

*Key words:* Nonlinear Coagulation Problem; Mass Loss; New Exact Travelling Solutions;
        Laplace Transform.