

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-35-660 **Aghalaya S Vatsala** and **Jie Yang*** (jxy5278@louisiana.edu), P. O. Box 41465, Lafayette, LA 70504. *Generalized Quasilinearization Method with Numerical Application for Reaction Diffusion System*. Preliminary report.

Reaction diffusion system plays an important role in applications. In this paper, we develop the method of generalized quasilinearization for such systems when the forcing function is the sum of convex and concave functions. Due to the splitting of the forcing function, we get four different types of coupled upper and lower solutions. The method of generalized quasilinearization we have developed is with respect to all four types of coupled upper, lower solutions. We also provide two numerical examples to demonstrate the application of our theoretical results. (Received September 27, 2004)