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**Mathew Baxter\*** (mabaxter@fgcu.edu), Florida Gulf Coast University, 10501 FGCU Blvd. S., Fort Myers, FL 33993, **Mangalagama Dewasurendra**, University of Central Florida, 4393 Andromeda Loop N., Orlando, FL 32816, and **Kuppalapalle Vajravelu**, University of Central Florida, 4393 Andromeda Loop N., Orlando, FL 32816. *A Method of Directly Defining the Inverse Mapping for Solutions of Coupled Systems of Nonlinear Differential Equations.*

Recently, Liao introduced a new method for finding analytical solutions to nonlinear differential equations. In this paper, we extend this idea to nonlinear systems. We study the system of nonlinear differential equations that governs nonlinear convective heat transfer at a porous flat plate, and find functions that approximate the solutions by extending Liao's Method of Directly Defining the Inverse Mapping (MDDiM). (Received September 19, 2016)