1096-65-725 **A. R. Hungria*** (allanh@udel.edu), Newark, DE 19711, and **J. D. Mireles James** and **J. P. Lessard**. *Computer-Assisted Proof of Periodic Solutions of ODE and PDE systems.*

We examine a computer assisted method for proving existence and uniqueness of periodic solutions of some ordinary and partial differential equations. The solutions may be periodic in space, time, or both. The method is a posteriori, i.e., we start with a reasonable numerical approximation and use it to formulate and check some key hypotheses. If these are satisfied, then the theorem follows, and the information gained is two-fold:

1) We obtain rigorous proof of the abstract existence (and uniqueness) of a periodic solution. 2) We obtain accurate quantitative information about the solution, such as bounds on its Fourier coefficients and domain of analyticity.

I will sketch the method and discuss a few example applications. (Received September 09, 2013)