1014-34-571 **John R. Graef** (John-Graef@utc.edu), Department of Mathematics, The University of Tennessee at Chattanooga, Chattanooga, TN 37403, and **Lingju Kong*** (Lingju-Kong@utc.edu), Department of Mathematics, The University of Tennessee at Chattanooga, Chattanooga, TN 37403. *Existence of Solutions for Nonlinear Boundary Value Problems.*

We study the nonlinear boundary value problem

$$\begin{gathered}(\phi(u'))' + f(t,u,u') = 0, \quad t \in (0,1),\\ u(0) = g(u(t_1), u'(t_1), u(t_2), u'(t_2), \ldots, u(t_m), u'(t_m)),\\ u(1) = h(u(t_1), u'(t_1), u(t_2), u'(t_2), \ldots, u(t_m), u'(t_m)),\end{gathered}$$

where ϕ, f, g, and h are continuous and $y\phi(y) > 0$ for $y \neq 0$. Sufficient conditions are obtained for the existence of solutions of the above problem based on the existence of coupled lower and upper solutions, which are defined in this paper. Explicit conditions are also found for the existence of solutions of the problem without assuming the existence of coupled lower and upper solutions. Moreover, applications of the results are presented, in particular, we study the existence of radial solutions of a class of qusilinear equations in annular domains. Our results extend and improve some recent work in the literature on boundary value problems for ordinary and partial differential equations.

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