

1046-34-1425

**Lianwen Wang** ([lwang@ucmo.edu](mailto:lwang@ucmo.edu)), Dept. of Mathematics and Computer Science, University of Central Missouri, Warrensburg, MO 64093, and **Rhonda McKee\*** ([mckee@ucmo.edu](mailto:mckee@ucmo.edu)), Dept. of Mathematics and Computer Science, University of Central Missouri, Warrensburg, MO 64093.  
*Existence of Bounded Monotonic Solutions of Second Order Differential Equations.* Preliminary report.

In this talk the existence of bounded monotonic solutions of a class of second order nonlinear differential equations

$$[p(t)h(x(t))f(x'(t))] = q(t)g(x(t)), t \geq a,$$

(with no monotonic assumption on  $g(x)$ ) is discussed. It has been proved that all solutions of the above differential equation are eventually monotonic, so the set of all solutions except the trivial solution can be classified into two classes

$$A = \{x : \text{there exists a } b \geq a \text{ such that } x(t)x'(t) > 0, t \in [b, \alpha)\},$$
$$B = \{x : x(t)x'(t) < 0, t \in [a, \infty)\}.$$

The existence of both class A and class B solutions are proved. The results obtained have extended and improved some analogous existing ones. (Received September 15, 2008)