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**Paul Eloe\*** (peloe1@ucl.ac.uk). *Forced Monotone Methods Applied to Boundary Value Problems for Ordinary Differential Equations.*

We consider a boundary value problem of the form

$$y''(t) = f(t, y(t), y'(t)), \quad a \leq t \leq b, \quad y(a) = a_1, y(b) = a_2, \quad (1)$$

where  $a < b$ ,  $f : [a, b] \times \mathbb{R}^2 \rightarrow \mathbb{R}$  is continuous and  $a_1$  and  $a_2$  are real. The method of upper and lower solutions, coupled with monotone methods, is useful if  $f$  is independent of  $y'$ . If the conjugate conditions,  $y(a) = a_1, y(b) = a_2$ , are replaced by right focal conditions  $y(a) = a_1, y'(b) = a_2$ , then the method of upper and lower solutions, coupled with monotone methods, is useful in the case that  $f$  depends on  $y$  and on  $y'$ . In this talk, we construct a boundary value problem of the form

$$y''(t) = f(t, y(t), y'(t)), \quad a \leq t \leq b, \quad y(a) = a_1, y'(b) = g(y, y'),$$

which is equivalent to (1) and obtain sufficient conditions on  $f$  and on  $g$  such that the method of upper and lower solutions, coupled with monotone methods, is useful. (Received August 06, 2013)