EXISTENCE OF SOLUTIONS FOR $2n^{th}$ ORDER NONLINEAR GENERALIZED STURM–LIOUVILLE BOUNDARY VALUE PROBLEMS

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Abstract. Higher order upper and lower solutions are used to establish the existence of solutions to $y^{(2n)} = f(t, y, y'', \dots, y^{(2n-2)})$, satisfying nonlinear boundary conditions, either of the form $g_i(y^{(2i-2)}(0), y^{(2i-1)}(0)) = 0$, $h_i(y^{(2i-2)}(1), y^{(2i-1)}(1)) = 0$, $1 \leqslant i \leqslant n$, or of the form $k_i(y^{(2i-2)}(0), y^{(2i-2)}(1)) = 0$, $\ell_i(y^{(2i-2)}(0), y^{(2i-2)}(1)) = 0$, $1 \leqslant i \leqslant n$.

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