# Fourth order problems with functional perturbed clamped beam boundary conditions

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In this talk we will study the existence of positive solutions of the following nonlinear fourth order boundary value problem

$$u^{(4)}(t) + M\,u(t) = f(t, u(t), u'(t)), \quad t \in [0, 1],$$

coupled to functional perturbed clamped beam boundary conditions:

$$u(0) = \lambda_1\,L_1(u), \quad u(1) = \lambda_2\,L_2(u), \quad u'(0) = \lambda_3\,L_3(u), \quad u'(1) = -\lambda_4\,L_4(u),$$

where $M$, $\lambda_i$ are real parameters and $L_i$ are linear operators, $i = 1, \ldots, 4$. We will use two different approaches, with two different operators: the first method is based on the fixed point index theory, while the second one uses Schauder's fixed point theorem.

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