Spectral analysis of a buckling problem on a ball

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In this talk, I will discuss the following fourth order eigenvalue problem:

$$\begin{cases} \Delta^2 u + \nu u = -\lambda \Delta u & \text{in } B_1, \\ u = \partial_r u = 0 & \text{on } \partial B_1, \end{cases}$$

where B_1 is the unit ball in $\mathbb{R}^N$ and $\nu \in \mathbb{R}$. I will be particularly interested in the first eigenvalue, its multiplicity, and the nodal properties of its corresponding eigenfunction.

This is a joint work with C. De Coster and S. Nicaise.