

POSITIVE SOLUTIONS FOR A FOURTH ORDER EQUATION OF KIRCHHOFF TYPE

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We study the existence of positive solutions of the fourth order boundary value problem

$$\begin{aligned}u'''' - m\left(\int_0^1 u'(t)^2 dt\right) u'' &= f(t, u, u'), \quad 0 < t < 1, \\u(0) = u(1) = u''(0) = u'' &= 0,\end{aligned}$$

where m and f are positive functions. This kind of nonlocal Kirchhoff equation models the bending equilibrium of extensible beams. Our approach is based on fixed points theorems in cones of positive functions.

REFERENCES

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- [2] T. F. Ma, *Positive solutions for a Kirchhoff type beam equation*, *Applied Mathematics Letters* **18** (2005) 479-482.

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