(i) $u(1) < \tau(u)$ for any $0 \neq u \in E(\lambda_0)$.

Indeed, in this case we have $E(\lambda_0) \cap \{u \in H;\, u \in K(u)\} = \{0\}$. Further, the projection $w = P_u 0$ is $w \equiv 0$ if $\tau(u) \leqslant 0$ and $w(x) = \tau(u)x$, $x \in [0,1]$, if $\tau(u) > 0$. Thus, (4.6) is satisfied if the following condition holds:

(ii) if $u(x) = ax$, $x \in [0,1]$, $a > 0$ then $\tau(u) < a$.

By Theorem 4, the assumptions (i), (ii) imply the existence of a bifurcation point $\lambda \in (4/\pi^2, +\infty)$ of the problem (4.12)–(4.14). To satisfy (i), (ii) one can take for instance $\tau(u) = \alpha \int_0^1 |u(x)|\,\mathrm{d}x$ with $\frac{1}{2}\pi < \alpha < 2$.

For more examples of quasivariational inequalities see [5] where partial differential equations corresponding to systems of reaction-diffusion with unilateral conditions on the boundary were considered. Note that such inequalities involve nonsymmetric operators A.

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