Příklad
Consider the problem $-\Delta u + \ln u = f$ in Ω, $u = u_d$ on $\partial\Omega$, where $f \in L^2(\Omega)$ is non-negative, and $u_d \in W^{1,2}(\Omega)$ fulfills $u_d \geqslant \varepsilon > 0$ almost everywhere in Ω.

GOAL 1: Show that there exists unique positive $u \in W^{1,2}(\Omega)$ solving the problem.

Důkaz

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GOAL 2: Prove the same statement but assume only $f \in L^2(\Omega)$, $u_d \in W^{1,2}(\Omega)$, $u_d > 0$ almost everywhere in Ω and $\int_\Omega |\ln u_d| < \infty$.

Důkaz

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