Existence and non-existence results of dead cores for fully nonlinear elliptic problems

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Abstract. In this talk we going to show existence/non-existence results of positive solutions for second order equations as follows

$$(\mathrm{P}_{a,q}) \qquad \begin{cases} |Du|^{\gamma}F(x,D^2u) + a(x)u^q(x) = 0 & \text{in } \Omega, \\ u \geq 0 & \text{in } \Omega, \\ u = 0 & \text{on } \partial\Omega. \end{cases}$$

on a bounded and smooth domain $\Omega \subset \mathbb{R}^N$. In our approach F is a fully nonlinear elliptic operator (with certain structural conditions), q is a non-negative sub-linear absorption term in relation to homogeneity of operator, and $a : \Omega \to \mathbb{R}$ is a sign-changing weight. We also analyse some results concerning existence of non-negative solutions having dead cores.