

# Sign-changing solutions for the Brezis-Nirenberg problem

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We deal with the Brezis-Nirenberg problem, namely with the problem

$$\begin{cases} -\Delta u = \lambda u + |u|^{p-1}u & \text{in } \Omega \\ u = 0 & \text{on } \partial\Omega \end{cases} \quad (1)$$

where  $\Omega$  is a bounded smooth domain of  $\mathbb{R}^N$ ,  $N \geq 3$ ,  $\lambda$  is a positive and real parameter, while  $p + 1 = \frac{2N}{N-2}$  is the critical exponent for the embedding of  $H_0^1(\Omega)$  into  $L^{p+1}(\Omega)$ .

We show some recent existence result on sign-changing solutions for the problem (1) in low dimensions and in higher dimensions.