A Semilinear Fourth Order Elliptic Problem with Exponential Nonlinearity

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We study a semilinear fourth order elliptic problem with exponential nonlinearity. Motivated by a question raised in the paper "P.L. Lions, *On the existence of positive solutions of semilinear elliptic equations*, SIAM Rev. 24, 441–467 (1982)", we partially extend known results for the corresponding second order problem. Several new difficulties arise and many problems still remain to be solved. We list the ones we feel particularly interesting in the final section.