An eigenvalue problem in anisotropic Orlicz-Sobolev spaces

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The existence of eigenfunctions for a class of fully anisotropic elliptic equations is established. The relevant equations are associated with constrained minimization problems for integral functionals depending on the gradient of competing functions through general anisotropic Young functions. In particular, the latter need neither be radial, nor have a polynomial growth, and are not even assumed to satisfy the so called Δ_2−condition. In particular, our analysis requires the development of some new aspects of the theory of anisotropic Orlicz-Sobolev spaces.