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On the Musielak-Orlicz-Gauss image problem

For a convex body K , its Musielak-Orlicz-Gauss image measure, denoted by $\tilde{C}_\Theta(K, \cdot)$, involves a triple $\Theta = (G, \Psi, \lambda)$ where G and Ψ are two Musielak-Orlicz functions defined on $S^{n-1} \times (0, \infty)$ and λ is a nonzero finite Lebesgue measure on the unit sphere S^{n-1} . Such a measure can be produced by a variational formula of $\tilde{V}_{G, \lambda}(K)$ (the general dual volume of K with respect to λ) under the perturbations of K by the Musielak-Orlicz addition defined via the function Ψ . The Musielak-Orlicz-Gauss image problem contains many intensively studied Minkowski type problems and the recent Gauss image problem as its special cases. Under the condition that $G(\cdot, \cdot)$ is decreasing on its second variable, the existence of solutions to this problem is established. This talk is based on a joint work with Dr. Qingzhong Huang, Deping Ye and Baocheng Zhu.