

# Quasiconformal mappings and Q-spaces

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**Abstract** Essen-Janson-Peng-Xiao 2000 raised the following open problem: *Let  $f$  be a quasiconformal mapping. Prove or disprove the boundedness of composition operator  $C_f$  on Q-space?*

In this talk, we give a partial answer to this problem by showing that if  $f$  has its Jacobian  $J_f$  in Muckenhoupt  $A_1$  class or if  $f$  is radial stretching, then the composition operator  $C_f$  is bounded on Q-spaces  $Q_\alpha(\mathbb{R}^n)$  with  $\alpha \in (0, 1)$ .