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Carleson measures in classical function spaces

We study some "one-box condition" for Carleson measures in Hardy, Bergman and Dirichlet spaces. In particular, we show that a finite measure μ on the unit disk is a Carleson measure for the Dirichlet space if it satisfies the Carleson one-box condition $\mu(S(I)) = O(\phi(|I|))$, where $\phi : (0, 2\pi) \to (0, \infty)$ is an increasing function such that $\int_0^{2\pi} \phi(x)/x \, dx < \infty$. We also show that the integral condition on ϕ is sharp.

Joint work with O. El-Fallah, K. Kellay, T. Ransford.