POINTWISE ESTIMATES IN THE CARLESON-JACOBS THEOREM

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Let Φ be a function analytic in the unit disk and continuous in the closed disk. Suppose that $|\Phi|$ satisfies the Lipschitz condition of order α on the boundary. It is well known that, under certain natural assumptions on the zeros of Φ, the inclusion $\Phi \in \mathrm{Lip}_{\alpha/2}$ is guaranteed, and the exponent $\alpha/2$ is best possible. The Carleson–Jacobs theorem, establised in the middle of the 1950s, was the first result in this spirit. It was proved under the assumptions that zeros were absent totally (more precisely, that Φ was outer) and $0 < \alpha < 1$.

The main result of the talk says that if $|\Phi|$ satisfies the Lipschitz condition of order α *at only one boundary point*, then, in a certain averaged sense, the smoothness of order $\alpha/2$ *at the same point* is still guaranteed for Φ. Certain ramifications of this result will also be discussed.

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