Szegö kernels on tubular domains near points of infinite type

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In joint work with Jennifer Halfpap and Stephen Wainger, we obtain estimates for the Szegö kernel on domains of the form $\Omega = \left\{ (z_1, z_2) \in \mathbb{C}^2 \,|\, \Im m[z_2] > b\left(\Re e[z_1]\right) \right\}$. Here $b \in \mathcal{C}^\infty(\mathbb{R})$ is convex and even, with $b''(r) > 0$ for all $|r| > 0$ and $b^{(n)}(0) = 0$ for all non-negative integers n. We show, for example, that if $b(r) = \exp\left(-|r|^{-\alpha}\right)$ for small $|r|$, then the Szegö kernel has singularities away from the diagonal of $\partial\Omega \times \partial\Omega$ if and only if $\alpha > 1$.