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Almost strictly pseudo-convex domains. Examples and applications

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Abstract. In this work we introduce a class of smoothly bounded domains Ω in $\mathbb{C}^n$ with few non strictly pseudo-convex points in $\partial\Omega$ with respect to a certain Minkowski dimension. We call them almost strictly pseudo-convex, **aspc**. For these domains we prove that a canonical measure associated to a separated sequence of points in Ω which projects on the set of weakly pseudo-convex points is automatically a geometric Carleson measure. This class of **aspc** domains contains of course strictly pseudo-convex domains but also pseudo-convex domains of finite type in $\mathbb{C}^2$, domains locally diagonalizable, convex domains of finite type in $\mathbb{C}^n$, domains with real analytic boundary and domains like $|z_1|^2 + \exp\{1 - |z_2|^{-2}\} < 1$, which are not of finite type.

As an application we study interpolating sequences for convex domains of finite type in $\mathbb{C}^n$. After proving a Carleson-type embedding theorem, we get that if Ω is a convex domain of finite type in $\mathbb{C}^n$ and if $S \subset \Omega$ is a dual bounded sequence of points in $H^p(\Omega)$, if $p = \infty$ then for any $q < \infty$, S is $H^q(\Omega)$ interpolating with the linear extension property and if $p < \infty$ then S is $H^q(\Omega)$ interpolating with the linear extension property, provided that $q < \min(p,\ 2)$.

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