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Monotone measures with bad tangential behavior in the plane

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Abstract: We show that for every $\varepsilon > 0$, there is a set $A \subset \mathbb{R}^2$ such that $\mathcal{H}^1 \llcorner A$ is a monotone measure, the corresponding tangent measures at the origin are not unique and $\mathcal{H}^1 \llcorner A$ has the 1-dimensional density between 1 and $3 + \varepsilon$ everywhere on the support.

Keywords: monotone measure, monotonicity formula, tangent measure
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