Geometry of the Space of Degenerate Polygons

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If a point $(z_1, z_2, \ldots, z_n) \in \mathbb{C}^n$ represents an n-gon with consecutive vertices $z_1, z_2, \ldots, z_n \in \mathbb{C}$, then the space of n-gons in the plane with labeled vertices inherits the topology of $\mathbb{C}^n$. In particular, the subset of n-gons that degenerate into an n-segment (configurations in $\mathbb{C}^n$ where all vertices are collinear) forms an $(n+2)$-dimensional real submanifold of $\mathbb{C}^n$. In this talk, we will focus on the topological and geometric properties of this submanifold.

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