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tube domain

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Definition. Suppose $S \subset \mathbb{R}^n$ is an open set (usually connected), then we define

$$T_S := \{z \in \mathbb{C}^n \mid \operatorname{Re} z \in S\}.$$

We call T_S the *tube domain* associated to S .

Basically the idea is that these domains give you complete freedom in the imaginary coordinates. An interesting fact about these domains is that T_S is pseudoconvex if and only if T_S is convex in the geometric sense, and this is true if and only if S itself is convex.

References

- [1] Steven G. Krantz. , AMS Chelsea Publishing, Providence, Rhode Island, 1992.