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Complex Analysis on Product Domains

Product domains are an important class of examples in several complex variables. Poincaré observed as early as 1907 that the unit ball in \mathbb{C}^2 is not biholomorphic to the unit disc. Product domains are only piecewise smooth and the smooth part of the boundary is Levi-flat.

We shall discuss recent work on function theory and mappings of product domains, in particular boundary behavior of functions and maps on products of pseudoconvex domains. It turns out that not all mysteries of this classical topic are completely understood yet. We will also discuss properties of two classes of domains closely related to product domains: symmetric products and domains with generic corners.

This is joint work with M.-C. Shaw, K. Verma and S. Gorai.