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On Bloch's Theorem

A classical theorem of André Bloch guarantees that there is a $B > 0$ such that for any holomorphic function $f : D \rightarrow \mathbb{C}$, where $D \subset \mathbb{C}$ is the unit disk, such that $|f'(0)| = 1$, there is a subdomain $D' \subset D$, so that f restricted to D' is one to one and $f(D')$ contains a disk of radius B . Computing the optimal value of B is an open problem. In this talk, we will discuss a new proof of Bloch's theorem, and a possible approach to improve on the known estimates on B . This is joint work with Julio Montero.