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ANALYSIS ON THE INTERSECTION OF TWO DISKS

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**Abstract of Poster Presentation:** Many problems in STEM require working in regions with inconvenient geometries. Special types of complex functions, called conformal mappings, make these problems easier to work on. In this project, we work on a domain,  $\Omega$ , which is the area of intersection between two disks. We prove that if the angle of intersection between the disks divides  $180^\circ$ , then  $f_\theta(z)$  (a conformal map from the intersection between two disks,  $\Omega$ , to  $\mathbb{D}$ ) is smooth on  $\overline{\Omega}$ ; if the angle of intersection is less than  $\frac{\pi}{k-1}$ , the integral of the  $|\partial^k f_\theta|^2$  is finite on  $\Omega$ .

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