

Conformal mapping and its application to Laplace's equation

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Laplace's equation plays a significant role in many branches of science and engineering, such as in electrostatics, astronomy, heat transfer and fluid dynamics.

In order to find analytical solutions to Laplace's equation, standard methods like separation of variables and Fourier transform can be applied, but they are limited to special domains, such as rectangle, disk and half infinite plane. Instead, we are interested in another method called "conformal mapping" which can solve Laplace's equation on more general domains.

In this talk, we will look at two types of conformal mappings, namely, Möbius transformation and Schwarz-Christoffel transformation and discuss various examples illustrating the method.

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