



Project 6: The Riemann Mapping Theorem

The simplest version of this remarkable result states that any simply connected domain is conformally equivalent to the unit disc.

Explain this in more detail and give some indications of how it is proved.

This result is important in Physics where it can be used among other things to find steady state temperature distributions and electric fields. Why is this?

There is a more advanced version of this theorem which deals with multiply connected domains like the one above which have more than one 'hole'. Discuss this and give some idea of why things are more complicated even for the simplest case of doubly connected domains also known as conformal annuli.