Abstract:
Static and axially symmetric vacuum solutions of Einstein's equations can be described by the Weyl metric which only depends on two unknown functions, given by the Laplace equation and a line integral. In this thesis we study some properties of two Weyl space-times whose sources are one-dimensional rings – the Appell ring and the Bach-Weyl ring. On the behaviour of proper distances and geodesics in the central region we demonstrate that in Weyl coordinates these sources represent directional singularities.