

We show how superluminal travel can be achieved by means of the Alcubierre warp drive. In this spacetime a spaceship locally at rest is surrounded by a "bubble" moving faster than the speed of light. We derive the equations of motion for photons and massive particles and illustrate properties of their solutions. We will find that warp drives cause frequency shifts and refraction of light passing the bubble wall, which affects the view of the outside universe seen by a traveller on spaceship. As for superluminal warp drives, existence of horizons will be shown. We will discuss that the stress-energy tensor, generating a warp corridor in spacetime, is not related to any classical field or matter, and attempts to interpret it via quantum mechanics resulted in extreme amounts of matter required.