Explaing remark

$\mathcal{C}_{in}$ 19

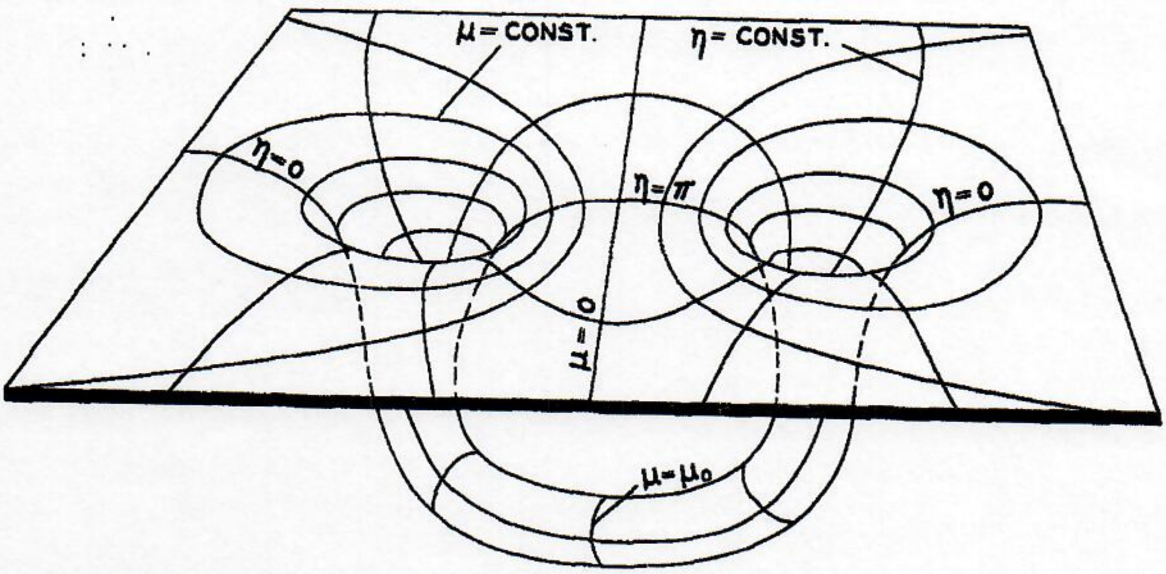
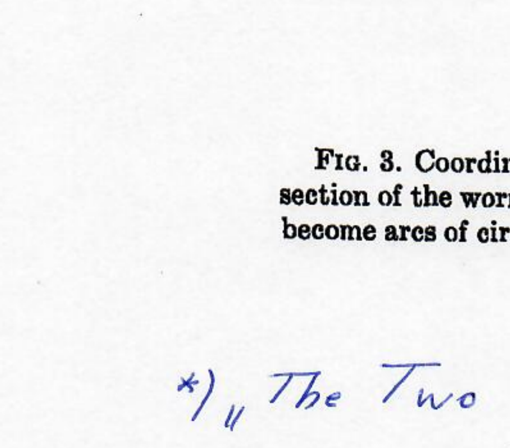


FIG. 3. Coordinate curves μ = const. and η = const. are drawn on a two-dimensional section of the wormhole manifold (cf. Fig. 2(c)). At large distances these coordinate curves become arcs of circles.

*) „The Two Body Problem in Geometrodynamics," Annals of Phys. 29, 304-331 (1964)

Ch. Misner: „Wormhole Initial Conditions," Phys. Rev. 118, 1110 (1960)

How to construct 3-d wormhole:



3-d Doughnut $D = S^1 \times S^2$ — $\theta \leftrightarrow \eta$ above

$$ds^2_{Dough.} = d\mu^2 + (d\theta^2 + \sin^2\theta \, d\varphi^2)$$

cross-section of D is a sphere (μ = const)

part of the doughnut near $\mu = \pi \equiv -\pi$ (indicated by ▦) will become the tube connecting the mouths of the wormhole

The antipodal part near $\mu = 0$ ($\equiv 2\pi$) must be ruptured („split") and spread out to become asympt. flat space at ∞.