Study of the Dynamic Aperture of the 4D Quadratic Map Using Invariant Manifolds, M. GIOVANNOZZI, CERN - The 4D quadratic map represents the transfer function of a FODO cell with a sextupolar nonlinearity in the thin lens approximation. This map describes the transverse betatron motion of a charged particle in a circular accelerator. The analysis of the dynamic aperture of such a mapping, i.e. the domain in phase-space where stable motion occurs, is made as a function of the linear tunes. Starting from the stability properties of the fixed points of low period (one or two), it is shown that the dynamic aperture is related to the invariant manifolds emanating from such unstable points. This represents a generalisation of a similar result obtained for generic two-dimensional symplectic maps.