CHAPTER VII

Matrix and zargonion varieties

7.1. Introduction.

7.2. Elliptic curves.

7.3. Rational points on derived elliptic curves.

7.4. Eigenvalues of matrix polynomials.

7.5. Homogenous matrix varieties in two variables.

7.6. Extension maps and contraction maps.

7.7. Zargon suboxes.

7.8. Zargonion varieties.

7.9. Zargonion twisted manifolds.

We can choose to embed a local quaternion structure in a global manifold which is oriented, that is say, an ix vector moving through 2π radians in a jy and kz circle returns to itself with the ix vector pointing in the same direction. When this happens, we say the observable derived from the quaternion is *globally bosonic*. We can also implement nonoriented global manifolds in which an ix vector moving through 2π radians in a jy and kz circle returns to itself with the ix vector pointing in the opposite direction. We then say the quaternion is *globally fermionic*.

Thus we are reduced to considering globally bosonic or globally fermionic quaternion structures. We will see that the globally bosonic and globally fermionic idea can be extended to the zargonions. Our escape route from contradiction is that the extended quaternion object given by the zargonions is not representable by a matrix, and a conclusion is that it is nonassociative. ☐

A Möbius strip has one side and one edge. Its boundary is a trefoil knot.

For the rectangle of figure (2) we can cut out a finite number of holes. Each hole has one edge, and a Mobius strip has one edge, so we can glue them together.

If zargonion rings are given a lower and an upper bound in each of their n coordinates, x_0, x_1, ... , x_{n-1} as $\pm a_0$, $\pm a_1$, ... , $\pm a_{n-1}$, then the pair ($+a_i$, $+ a_j$) and the pair ($-a_i$, $-a_j$) can be glued in two ways as a_i to $-a_i$ and a_j to $-a_j$, or as a_i to $-a_j$ and a_j to $-a_i$. The first defines a global bosonic structure and the second a global fermionic structure.

We will label bosonic structures by b and fermionic structures by f. If we look at just the zargonion imaginary components of the zargonion, then for say a quaternion, there are configurations {b, b, b}, {f, b, b}, {f, f, b} and {f, f, f}.