

CHAPTER 2

Hyperintricate and branched geometry

2.1. Introduction.

After describing the Euler-Poincaré characteristic, we incorporate the Atiyah-Singer index theorem.

2.2. The superexponential model.

A space X is *simply-connected* if and only if it is path-connected, and whenever $p: [0,1] \rightarrow X$ and $q: [0,1] \rightarrow X$ are two paths given by continuous maps with the same start and endpoint, then p can be continuously deformed to get q while keeping the endpoints fixed. Thus for any two given points in X , there is one and only one type of path connecting them.

2.3. Topological branching and explosions.