

# Interesting Topological Spaces in Algebraic Geometry

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### 1 Ideas for Spaces

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- Curves
  - Elliptic Curves
  - Higher genus
  - Hyperelliptic curves
- Surfaces
  - Klein Quartic
  - Compact Riemann surfaces
  - Enriques surfaces
  - Kummer surfaces
  - Del Pezzo surfaces
- Compact Complex Surfaces
  - Rational ruled
  - Enriques
  - $K3$ 
    - \* Kahler Manifolds
  - Kodaira
  - Toric
  - Hyperelliptic
  - Properly quasi-elliptic
  - General type
  - Type VII
- Fake projective planes
- Conics
- Calabi-Yau manifolds
- Hurwitz schemes
- Topological galois groups, e.g.  $G(\bar{F}/F)$  for  $F = \mathbb{Q}, \mathbb{F}_p$ .
- $\text{Spec}(R)$  for  $R$  a DVR (a Sierpinski space)

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- Quiver Grassmannians
  - Rigid analytic spaces
  - Affine line with two origins