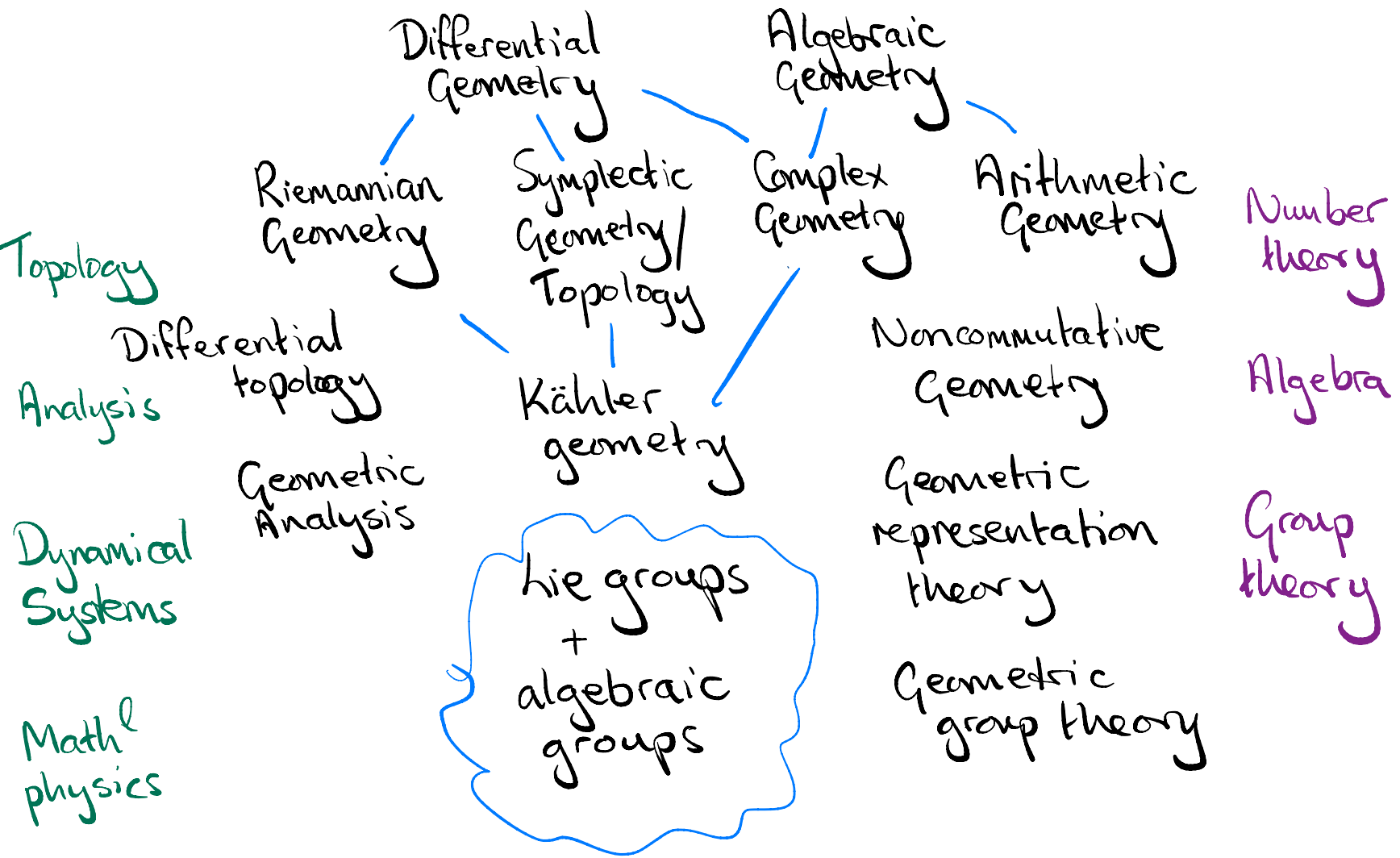


LMS Prospects in Mathematics

Geometry

Frances Kirwan, Oxford



Differential Geometry

Algebraic Geometry

Riemannian Geometry

Symplectic Geometry/Topology

Complex Geometry

Arithmetic Geometry

Number theory

Topology

Differential topology

Noncommutative Geometry

Algebra

Analysis

Kähler geometry

Geometric representation theory

Group theory

Dynamical Systems

Geometric Analysis

lie groups + algebraic groups

Geometric group theory

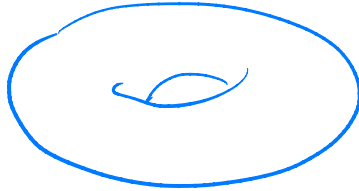
Math<sup>l</sup> physics

Moduli spaces arise in classification problems in geometry: e.g. classify compact Riemann surfaces up to biholomorphism.

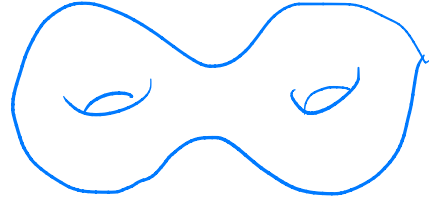
Genus  $g$



$g=0$



$g=1$



$g=2$

Except when  $g=0$ , this is not enough for identification

Moduli spaces  $\mathcal{M}_g$

$$\dim_{\mathbb{C}} \mathcal{M}_0 = 0, \quad \dim_{\mathbb{C}} \mathcal{M}_1 = 1$$
$$\dim_{\mathbb{C}} \mathcal{M}_g = 3g - 3 \quad \text{if } g \geq 2$$



LSQNT  
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Geometry & Number  
Theory CDT  
Imperial,  
UCL, KCL