smooth $\mathbb{R}$-manifolds of dimension 3

(Poincare conjecture in dimension 3) **Let M be a closed simply connected 3-manifold. Then M is diffeomorphic to S^3.**

	non-contractible	contractible
closed	S^3	none.
open	$\mathbb{R} \times S^2$, and more?	$\mathbb{R}^3$ and uncountably many more

closed manifolds

geometry $X \cong {}^{G}/_{K}$	closed manifolds ${}_{\Gamma}\backslash^{X}$	$\pi_1 \cong \Gamma$
S^3		finite
$\mathbb{R}^3$		
$\mathbb{R}H^3$		
$\mathbb{R} \times S^2$		
$\mathbb{R}H^2 \times \mathbb{R}$		
$H(3, \mathbb{R})$		
$\widetilde{SL(2, \mathbb{R})}$		
Sol		
no geometry		