

• If M is isotropic at every point then is M homogeneous?

Yes. (Pf later - need to use geodesics.)

• Does every Lie gp G occur as $\text{Isom}(M)$ for some M ?

Yes for G compact. (1987.)

• What are all the homog. isotropic spaces?

(Up to finite gp quotients):

\mathbb{R}^n

$$S^n = SO(n+1)/SO(n)$$

$$H^n = SO_0(n,1)/SO(n)$$

$$\mathbb{C}P^n = U(n+1)/U(n) \times U(1)$$

$$\mathbb{C}H^n = U(n,1)/U(n)$$

$$\mathbb{H}P^n = Sp(n+1)/Sp(n) \times Sp(1)$$

$$\mathbb{H}H^n = Sp(n,1)/Sp(n) \times Sp(1)$$

$$\mathbb{O}P^2 = F_4/Spin(9)$$

$$\mathbb{O}H^2 = F_4^{-25}/Spin(9)$$