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	abstract	Kinematic space has been defined as the space of codimension-2 spacelike extremal surfaces in anti de Sitter (AdS d+1) spacetime which, by the Ryu-Takayanagi proposal, compute the entanglement entropy of spheres in the boundary CFT d . It has recently found many applications in holography. Coadjoint orbits are symplectic manifolds that are the classical analogues of a Lie group's unitary irreducible representations. We prove that kinematic space is a particular coadjoint orbit of the d-dimensional conformal group SO(d, 2) . In addition, we show that the Crofton form on kinematic space associated to AdS 3 , that was shown to compute the lengths of bulk curves, is equal to the standard Kirillov-Kostant symplectic form on the coadjoint orbit. Since kinematic space is KÃ¤hler in addition to symplectic, it can be quantized. The orbit method extends the kinematic space dictionary, which was originally motivated through connections to integral geometry, by directly translating geometrical properties of holographic auxiliary spaces into statements about the representation theory of the conformal group.	**abstract**	Kinematic space has been defined as the space of codimension-2 spacelike extremal surfaces in anti de Sitter (AdS_d+1) spacetime which, by the Ryu-Takayanagi proposal, compute the entanglement entropy of spheres in the boundary CFT_d. It has recently found many applications in holography. Coadjoint orbits are symplectic manifolds that are the classical analogues of a Lie group's unitary irreducible representations. We prove that kinematic space is a particular coadjoint orbit of the d-dimensional conformal group SO(d,2). In addition, we show that the Crofton form on kinematic space associated to AdS_3, that was shown to compute the lengths of bulk curves, is equal to the standard Kirillov-Kostant symplectic form on the coadjoint orbit. Since kinematic space is KÃ¤hler in addition to symplectic, it can be quantized. The orbit method extends the kinematic space dictionary, which was originally motivated through connections to integral geometry, by directly translating geometrical properties of holographic auxiliary spaces into statements about the representation theory of the conformal group.		
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