

INDAM MEETING:  
**HYPERBOLIC DYNAMICAL SYSTEMS  
IN THE SCIENCES**

CORINALDO (ITALY)  
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**Some examples of hyperbolic dynamics**

I will

- (1) recall the construction of a mechanical linkage whose free dynamics is Anosov on each positive energy level, and pose problems about how to extend this to higher dimensions, and to partially hyperbolic situations, and relevance to robotics,
- (2) sketch the construction of a  $C^3$ -structurally stable mixing volume-preserving vector field in a bounded 3D domain with no-slip boundaries, which are essentially Anosov, and some Lorenz-like variants,
- (3) mention the Cerbelli-Giona map, a piecewise affine pseudo-Anosov map of the 2-torus, which allows one to construct a standard-like map with provable diffusion coefficient  $1/(4\sqrt{3})$  and suggests a way to make a codimension-3 submanifold of smooth mixing standard-like maps,
- (4) remark that timelike geodesic flow in de Sitter space is Anosov and suggest some consequences for reinterpretation of Hubble's law.