Suggested Topics

Suggestions from Herman

- Fary-Milnor Theorem: The total curvature of a knotted, simple closed curve in Euclidean 3-space is $> 4\pi$. References: Baby doCarmo pp390-404 and Chern: Curves and Surfaces in Euclidean Space.
- Moser: On the volume elements on a manifold (1965). Any two volume elements on a closed manifold with the same total volume are equivalent via a diffeomorphism of the manifold.
- The Carpenter’s Rule Problem. Connelly-Demaine-Rote ”Straightening polygonal arcs and convexifying polygonal cycles” (2000)
- Connelly (1977). There exist polyhedral embeddings of $\mathbb{S}^2$ in $\mathbb{R}^3$ which are flexible.

Suggestions from Wolfgang

- 2-dimensional orbifolds (reference: Scott “The Geometries of 3-manifolds”)
- 4-dimensional orbifolds (reference: Weinstein-Moore-Chen)
- Embeddings $M^n \subset \mathbb{R}^{n+2}$
- Hopf Fibrations
- the Hitchin-Thorpe Inequality

Suggestions from Brian