



Making Magical Shapes

The unusual shape below has a special property: It has one balance (equilibrium) point that is stable and one that is unstable. If you jostle the shape away from its stable balance point, at the bottom, it will always right itself and settle back to that point. At its unstable point, on top, the shape can balance, but the slightest disturbance will knock it off balance and it will return to resting at the stable balance point, as it does when placed down in any other position. In the 1990s a mathemati-



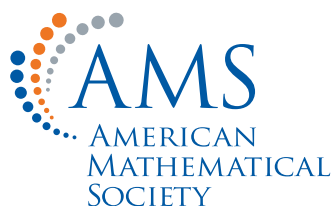
Image: Prof. Alain Goriely.

cian conjectured—despite widespread belief—that such a shape made up of the same material throughout (no weights) was possible, but its existence wasn't confirmed until about ten years ago. Two Hungarian researchers, combining geometric thinking, mathematical software, and extremely precise manufacturing, created what is now known as a *Gömböc*, which is Hungarian for spherelike.

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