The self assembly of closed surfaces from flat sheet

MICHAEL BRENNER, Applied Mathematics and Applied Physics, School of Engineering and Applied Sciences, Harvard University

We will discuss theoretical and some experimental work to understand the conditions which a flat sheet with embedded permanent magnets can spontaneously fold into a closed surface. The critical question is understanding how to design the system – both the cut of the sheet and the position of the magnets – to maximize the yield of assembling into a closed surface without misfolding. This problem also raises novel and interesting questions in thin plate elasticity, which will be highlighted.