



Seminar/Talk

How geometry and topology make materials rigid or floppy

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The materials of biology, from sharkskin to cartilage to wood, regularly out-perform their synthetic equivalents. Organisms can achieve this because their materials have precise geometric structures that endow them with tailored mechanical properties that can often be changed in situ. It has recently become possible to fabricate comparable structures through 3D printing, but we still seem to understand little about how geometry and mechanics are intertwined. This talk will discuss why this is a hard problem (NP-hard actually), and highlight new work by my group and collaborators that are starting to unveil new connections between geometry and mechanics. This new understanding has allowed us to design materials that can change their mechanical properties, changing from rigid to floppy due to the imposition of internal stresses, and sheds light on the flexibility of shells and other structures.

Friday, April 3, 2026 11:00am - 12:00pm

Moonstone Bldg / Ground floor / Seminar Room F (I24.EG.030f)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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