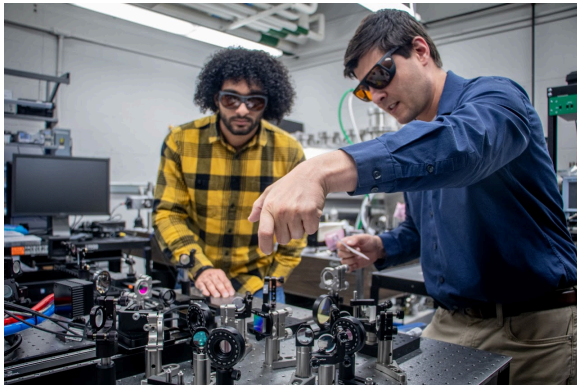


Nov. 3, 2025

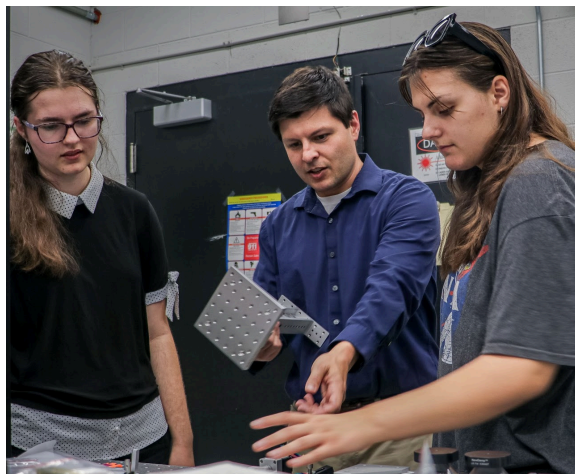
Contact: Kate McAlpine, kmca@umich.edu

Captions: Laser links to bolster the next generation of satellite mega-constellations



limbach-lab1 Bilal Hassan (left), a PhD student in aerospace engineering, discusses how to configure a pulse shaper with Limbach (right). With funding from the Air Force Office of Scientific Research, Limbach is leading a team that aims to enable satellites to share energy and momentum through laser interlinks. Credit: Jason Bolton, Aerospace Engineering, University of Michigan

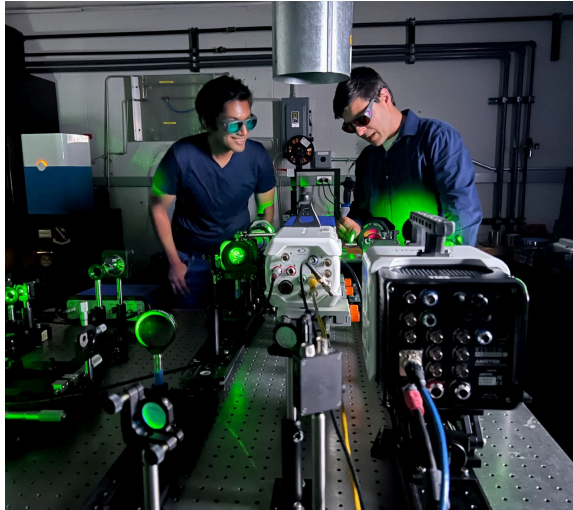
Alt text: Two men in dark protective glasses work at an optical table, a black surface with optical components like lenses and reflectors secured to it.



limbach-lab2 Reganne Watts (left), and Ashley Carman (right), undergraduate students in aerospace engineering, discuss the setup for a sensitive nanoNewton thrust stand with Limbach (center). With funding from the Air Force Office of Scientific Research, Limbach is leading a team that aims to enable satellites to share energy and momentum through laser interlinks. Credit: Jason Bolton, Aerospace Engineering, University of Michigan

Alt text: Limbach gestures toward the table while Carman reaches for something out of

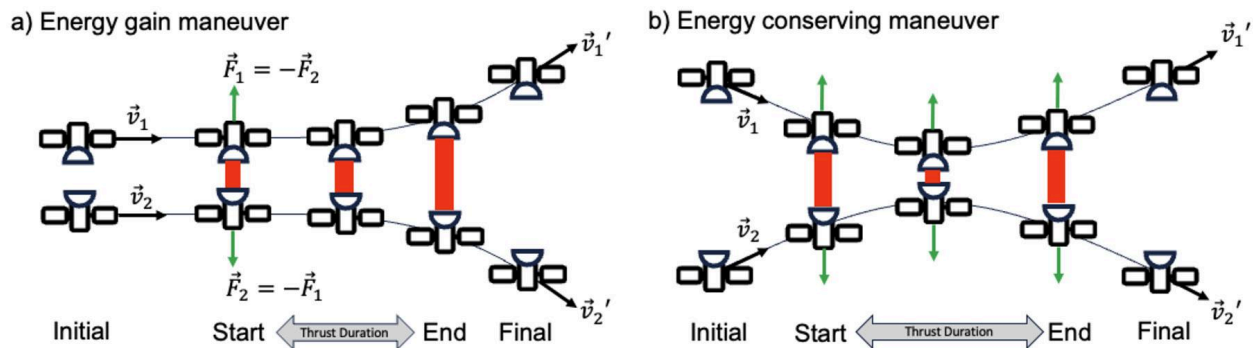
frame. Watts observes.



■ limbach-lab3 Rishav Choudhary (left), a postdoctoral student in aerospace engineering, looks at a tomographic interferometry optical system with Limbach (right). With funding from the Air Force Office of Scientific Research, Limbach is leading a team that aims to enable satellites to share energy and momentum through laser interlinks. Credit: Jason Bolton, Aerospace Engineering, University of Michigan

Alt text: Two men in dark protective glasses stand at a blocky white machine with cables extending from the back. The optical components on the table glow green with laser light.

components on the table glow green with laser light.



■ laser-interlink-satellite-maneuver.jpg

The illustration shows two of the maneuvers that could be enabled by transferring momentum through laser interlinks. In one, two satellites moving in parallel to one another use laser light to change to a divergent trajectory. In another, two satellites that are approaching one another use laser light to effectively bounce off one another without colliding. Credit: Christopher Limbach, Photonic Sensing and Flow Interaction Laboratory, University of Michigan

Alt text: In both graphics, the satellites are represented as three rectangles and a semicircle, the latter representing the laser interlink. They move right to left, interlinks facing each other, with five frames showing different stages of the maneuver. In the middle three frames, laser light shown in red spans the distance between the interlinks. Green force arrows show how the satellites push one another away.