

## **An Autonomous Passive Optics Bench Release/Reclamp Device Using Shaped Memory Alloys**

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The Tropospheric Emission Spectrometer (TES) is an instrument payload which will fly on the AURA Earth Orbit Satellite (EOS) to study and measure global ozone distribution. This paper describes the novel approach using Shaped Memory Alloys (SMAs) to relieve stresses in the 100 kg TES optics bench after launch. The SMA releases the bench when cooled to its operating temperature of 180K and automatically reclamps the bench to regain full bolt preload when warm. This negates the need for any automatic or manual intervention at the joint interface after every thermal test cycle. A full series of qualification tests were performed to ensure bolt preloads were regained at warm temperatures and full release occurred at cold temperatures.