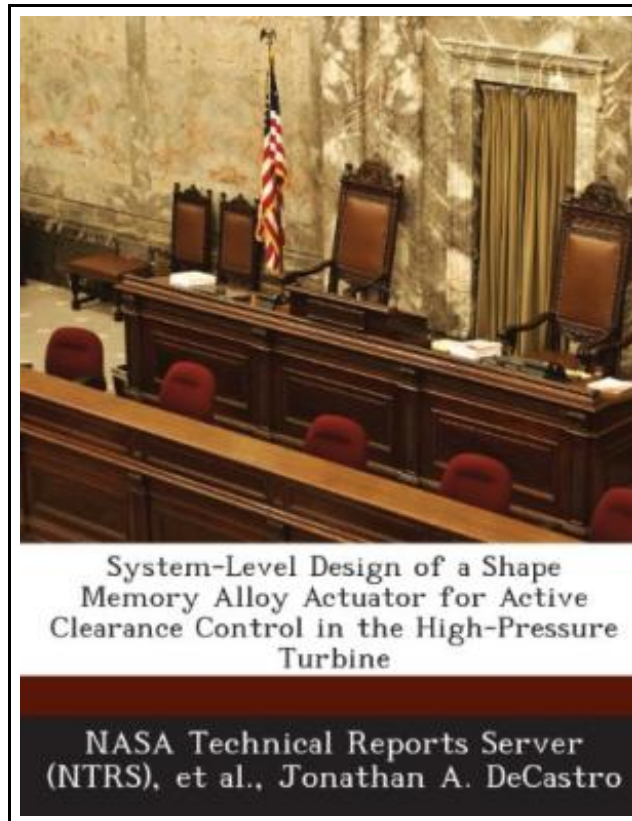


# System-Level Design of a Shape Memory Alloy Actuator for Active Clearance Control in the High-Pressure Turbine



Filesize: 7.39 MB

## ***Reviews***

*A new electronic book with a new perspective. Better then never, though i am quite late in start reading this one. Your life period will be change the instant you comprehensive looking at this pdf.  
(Dr. Constantin Marks II)*

## SYSTEM-LEVEL DESIGN OF A SHAPE MEMORY ALLOY ACTUATOR FOR ACTIVE CLEARANCE CONTROL IN THE HIGH-PRESSURE TURBINE



BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. This paper describes results of a numerical analysis evaluating the feasibility of high-temperature shape memory alloys (HTSMA) for active clearance control actuation in the high-pressure turbine section of a modern turbofan engine. The prototype actuator concept considered here consists of parallel HTSMA wires attached to the shroud that is located on the exterior of the turbine case. A transient model of an HTSMA actuator was used to evaluate active clearance control at various operating points in a test bed aircraft engine simulation. For the engine under consideration, each actuator must be designed to counteract loads from 380 to 2000 lbf and displace at least 0.033 inches. Design results show that an actuator comprised of 10 wires 2 inches in length is adequate for control at critical engine operating points and still exhibits acceptable failsafe operability and cycle life. A proportional-integral-derivative (PID) controller with integrator windup protection was implemented to control clearance amidst engine transients during a normal mission. Simulation results show that the control system exhibits minimal variability in clearance control performance across the operating envelope. The final actuator design is sufficiently small to fit within the limited space outside the high-pressure turbine case and is shown to consume only small amounts of bleed air to adequately regulate temperature. This item ships from La Vergne, TN. Paperback.



[Read System-Level Design of a Shape Memory Alloy Actuator for Active Clearance Control in the High-Pressure Turbine Online](#)



[Download PDF System-Level Design of a Shape Memory Alloy Actuator for Active Clearance Control in the High-Pressure Turbine](#)

## You May Also Like



### **Animalogy: Animal Analogies**

Sylvan Dell Publishing. Paperback. Book Condition: New. Cathy Morrison (illustrator). Paperback. 32 pages. Dimensions: 9.8in. x 8.4in. x 0.4in. Compare and contrast different animals through predictable, rhyming analogies. Find the similarities between even the most incompatible...

[Save Book »](#)



### **The Whale Tells His Side of the Story Hey God, Ive Got Some Guy Named Jonah in My Stomach and I Think Im Gonna Throw Up**

B&H Kids. Hardcover. Book Condition: New. Cory Jones (illustrator). Hardcover. 32 pages. Dimensions: 9.1in. x 7.2in. x 0.3in. Oh sure, we all heard the story of Jonah and the Whale a hundred times. But have we...

[Save Book »](#)



### **God Loves You. Chester Blue**

Henry and George Press. Paperback. Book Condition: New. Ursula Andrejczuk (illustrator). Paperback. 140 pages. Dimensions: 8.0in. x 5.2in. x 0.3in. BEAUTIFUL NEW ILLUSTRATIONS BRING THE STORY TO LIFE! A charming book about a mysterious bear that shows...

[Save Book »](#)



### **Good Night, Zombie Scary Tales**

Feiwel & Friends. Paperback. Book Condition: New. Iacopo Bruno (illustrator). Paperback. 112 pages. Dimensions: 8.2in. x 5.4in. x 0.2in. Welcome. Have a seat. Ignore the shambling undead outside. Let us tell you a story. But be...

[Save Book »](#)



### **Yearbook Volume 15**

RareBooksClub. Paperback. Book Condition: New. This item is printed on demand. Paperback. 58 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. This historic book may have numerous typos and missing text. Purchasers can usually download a free...

[Save Book »](#)