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SELF DEPLOYING ANTENNA SYSTEM FOR NANO SATELLITES BASED ON SHAPE MEMORY  
ALLOYS

**Abstract**

In the road to build the NEE-01 PEGASUS satellite the Space Mission Directorate of the EXA decided that one of the key design principles should be a high functional efficiency such that our engineers should use the aid of natural forces whenever possible to build reliable and low cost subsystem in order to achieve a robust and simple spacecraft.

In this case, we will focus in the antenna system design which is based in shape memory alloys that resulted in a sturdy, well tuned and very reliable antenna that will deploy in orbit using only the heat from the sun. Key elements in the design are the transition temperature selection alongside with the extreme precision cutting and bending radius parameters to achieve the expect results. Test figures gives a dipole with a gain slightly over 3dB that deploys to its target configuration in the 100

The system uses no power sources and no mechanical components, as well as no hinges and produces no action-reaction effect that could affect the spacecraft angular momentum or attitude during deployment phase.