

## **Modified approach for optimum position and sizing of piezoelectric actuator for steering of parabolic antenna**

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### **Summary**

Various applications of piezoelectric actuators have been explored over the years. One such application is use of piezoelectric actuators for shape control of structures. In this paper, steering of parabolic antenna by deforming the antenna surface using piezoelectric actuators has been explored. Optimization based on Genetic Algorithm is carried out to find out optimum location, length and applied electric field to the piezoelectric actuators to achieve desired steering of antenna. Constraints are included in the objective function using penalty approach. Shell finite element model is used to determine deformations induced by the actuators. As the wavelength is sufficiently smaller than the aperture dimension, far field radiations are calculated using geometric optics. It is observed that new optimization approach gives better result.

