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PROTECTION OF SATELLITE BY OWN MAGNETIC FIELD.

Abstract

We all know that amount of Galactic Cosmic Rays(GCR) and Solar radiations are in abundance in space. Our Earth's magnetosphere provide natural protection against space radiations, Deflecting most charged solar particles from earth. Earth protective magnetic bubble, called the magnetosphere, deflects most solar particles. But if we send a deep space mission where planet's magnetic field is not present then we use different kind of materials or compositions to protect our Satellites from these radiations. The sun emits radiations that can damage electronic components and cripple satellites, they can't always withstand an intense influx of high energy particles of electromagnetic current. As we know that using of such kind of materials protect satellite from these radiations like Aluminium (Al) and Aluminium coated Polyimide. But we want to use different kind of method to protect our Space probe. We want to use a Satellite's own magnetic field to protect against solar radiations and galactic cosmic rays. We know that earth's magnetic field is approximate 10ˆ-4 Tesla or 1 gauss which protect us from high energetic particles, solar radiations and GCR. So we can create a vortex to generate magnetic field . Polar vortex patterns created by moving domain walls, such as around the points of needle domains and near domain wall kinks, are the source of a strong magnetic signal. Displacement currents are generated by these vortices, and these currents are the source of magnetic moments perpendicular to the vortex plane. For that we will be using ferroelastic materials. Superconductivity, polarity, and other features that do not exist in bulk are frequently seen in ferroelastic twin boundaries. Thus, ferroelastic materials can be functionalized by designing and optimising domain barriers. We show that moving domain walls exhibit magnetic properties even when there is no magnetic element in the material using atomistic simulations. For a collective thin film of 1000 lattice planes and vortex movements at the speed of sound, we predict that the magnetic moment can reach several tens of Bohr magnetons