

# A METHOD FOR REPAIRING MAGNETOSPHERE

TARA AHMADI

Shahed Hooshmand High School (smart), tara\_ahmadi\_smart@yahoo.com  
tara\_ahmadi\_smart@yahoo.com

Introduction: Earth has magnetic field that its strength is normal but it will change. Changing the magnetosphere in future is cause of lowering its strength and this subject is an alert for us.

Dangers on the Earth

FTE: FTE is transferring magnetic flux between Sun and Earth. Particles enter by following magnetic field lines. Active FTEs are magnetic cylinders that allow particles to flow through rather easily; they are important conduits of energy for Earth's magnetosphere.

Magnetosphere reversal: in during of reversing magnetic poles magnetic field being less till change of poles completed, also the magnetosphere dipole component decrease substantially during a reversal to values that range from 10% to 25% of the pre-reversal strength.

Sun-Earth interaction: The sun's magnetic field shifts its orientation frequently, aligned or anti-aligned with magnetosphere. When the fields aren't aligned, "the shield is up and very few particles come in and when the fields are aligned, it creates a huge breach, and there's lots and lots of particles coming in.

The method: For repairing magnetic field should enrich its strength .adding new magnetic field to it to old magnetosphere can solve problems. For adding new magnetic field to magnetosphere need to a system generating magnetic field that general strength will be equal with magnetosphere strength.

System's structure: we use two particular of superconductors in system because we need strong magnetic field.

Gadolinium: when it placed in liquid Nitrogen, get magnetic field which is MONOPOLE, now we can transfer energy between NMP-SMP by using this characteristic.

Type2 superconductors: The only metals which can generate strong magnetic field are this special type of superconductor elements they have complex structure but they can create strong field.

Particle's motion: explaining with orbit theory. Particle's way in magnetic field is spiral toward weakest place with Larimore radius  $R = m_p V_{\perp} / q B$  in finally Larimore radius is zero and particle has been reflected by field. (Magnetic mirror).

Equation: 1] scalar potential in the Earth's magnetic field:  $V = a \sum \sum (a/r)^{n+1} (g_n' \cos m \phi + h_n' \sin m \phi) P_n'(\cos \theta)$  2]magnetic field generating by magnetism metal:  $B(r) = \mu/4\pi \int \rho_m(r-r')/|r-r'|^3 dv' + \mu/4\pi \int \sigma_m(r-r')/|r-r'|^3 da' + \mu M(r)$  3] density of energy in a field:  $U = 1/2 \int H.B dv$  4] magnetic energy in cylindrical superconductor:  $E = 1/2 \cdot f(\xi, \delta) \cdot R \cdot N^2 \cdot I^2$

Magnetosphere, Superconductors, Gadolinium

Shahed Hooshmand High School (smart), tara\_ahmadi\_smart@yahoo.com