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Space Impact Ejecta Model of Micrometeoroid Collision on MISSE-6

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American Physical Society

UtahState University

Space Impact Ejecta Model of Micrometeoroid Collision on MISSE-6

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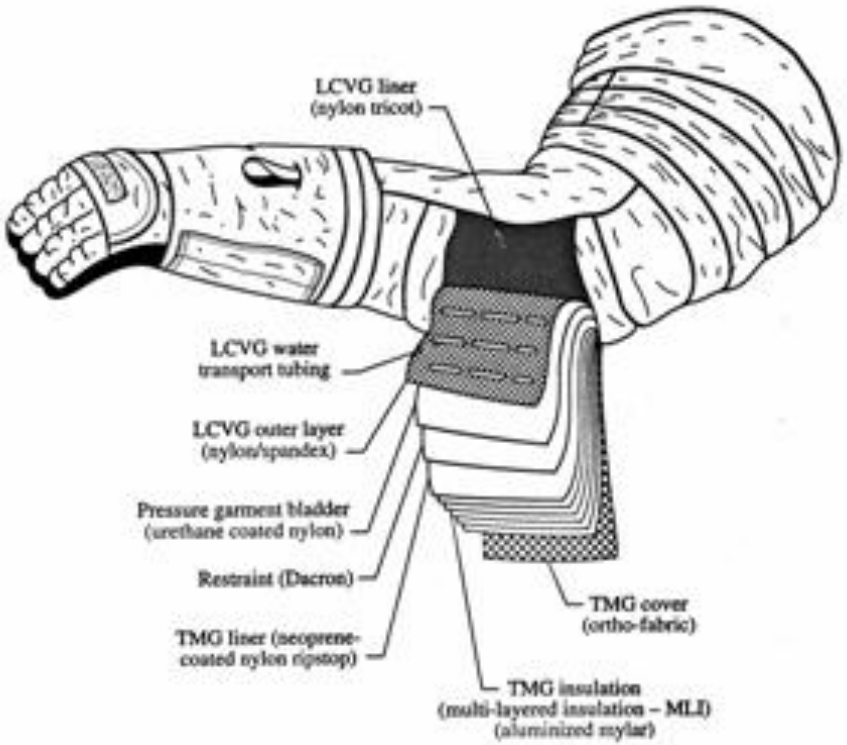
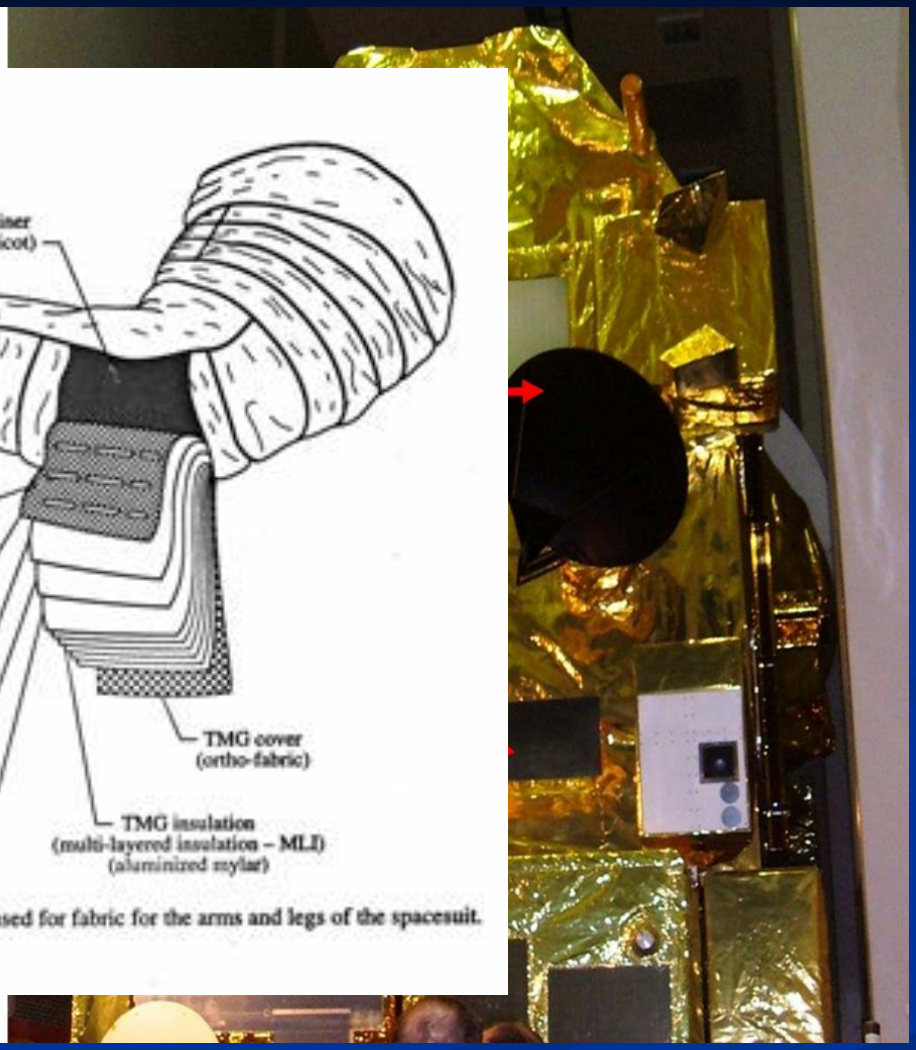
NASA

This large communication satellite incorporates materia
in SU

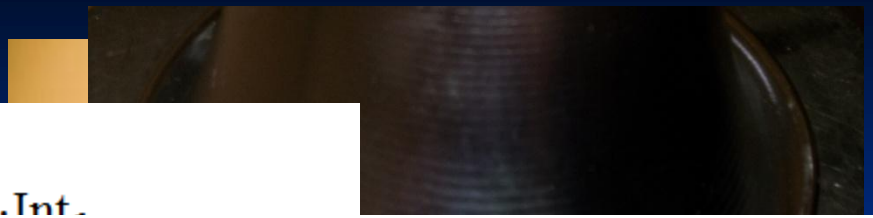
Graphite Composite
Au/Mylar
Kapton
Black Kapton
Aquadag
Al
White Paint
ITO
RTV
FR4
Coverglass



Cross section of material layup used for fabric for the arms and legs of the spacesuit.



PEC 2 - TRAY 2



UV Exposure Time

The duration of the MISSE flight was $\Delta t_{MISSE} := 1.5 \cdot yr = 548 \cdot day$

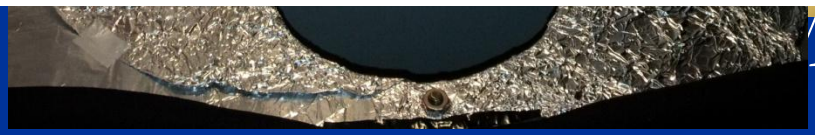
Time for first sample: $\Delta t_1 := \frac{\Delta t_{MISSE}}{AF} = 145.685 \cdot day$

is:

Vacuum ultraviolet (VUV) 10 nm to 200 $J_{VUV} := (0.0057 \cdot \%) \cdot J_{sun} = 7.83 \times 10^{-3} \cdot \frac{mW}{2}$

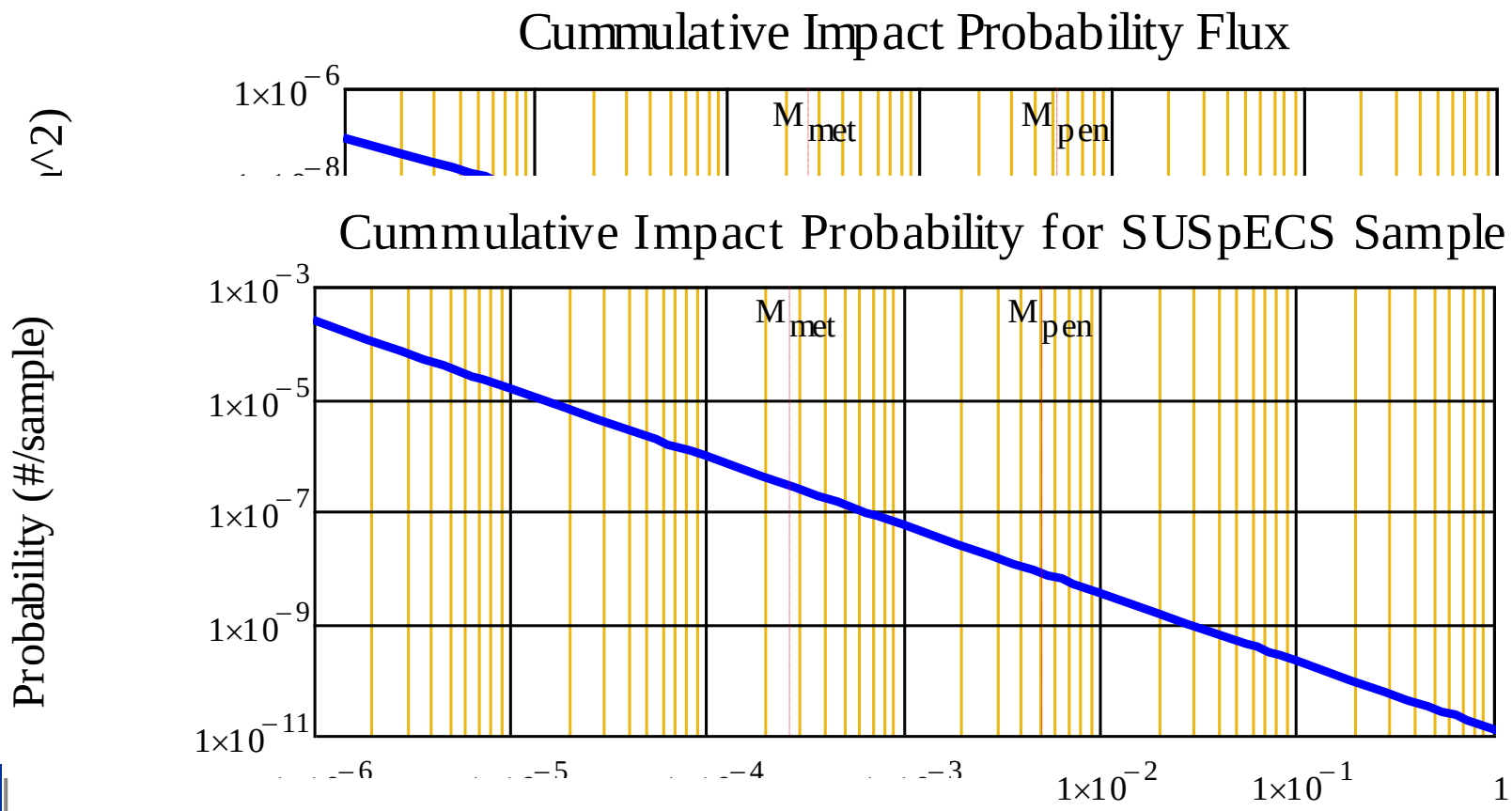
Enhancement factor: $EN := 8$

Time for first sample: $\Delta t_{1_EN} := \frac{\Delta t_{MISSE}}{AF \cdot EN} = 1.573 \times 10^{6}$; $\Delta t_{1_EN} = 18.211 \cdot day$



Mylar

Calculate the velocity of the ISS at its mean orbit



Cour-Palais formula:

$$N_m(M) := 10^{\left(-14.37-1.21\cdot\log\left(\frac{M}{gm}\right)\right)}\cdot\frac{impacts}{m^2\cdot s}$$

Thanks

Questions?