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*Supplementary Materials*

**Development of Cycloaliphatic Epoxy-POSS Nanocomposite Matrices with Enhanced Resistance to Atomic Oxygen**

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a) RAMM Integrated Antenna Mast System [7]



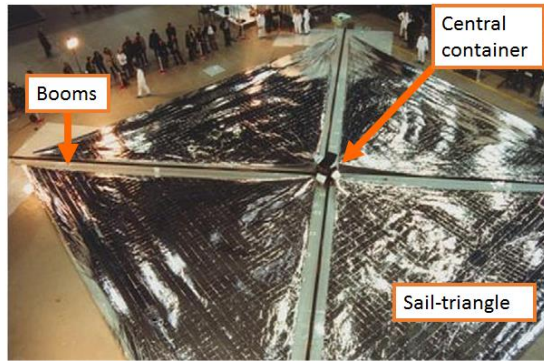
b) Motorised Camera mast on EADS Astrium Mars Rover [7]



c) Mirror Prototype [8]




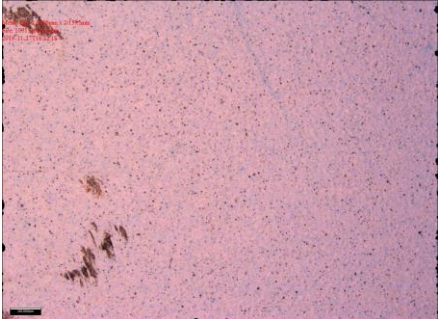



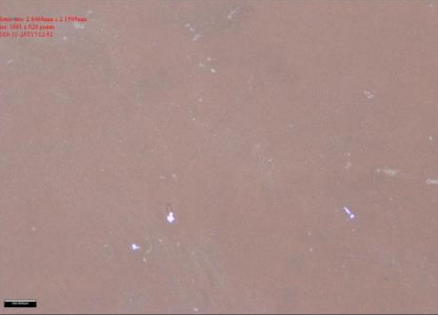

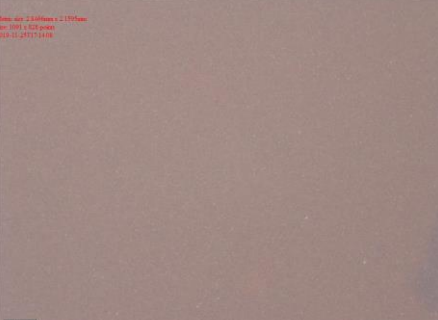
d) Roll Out Solar Power System [7]



e) Solar Sail components [9]

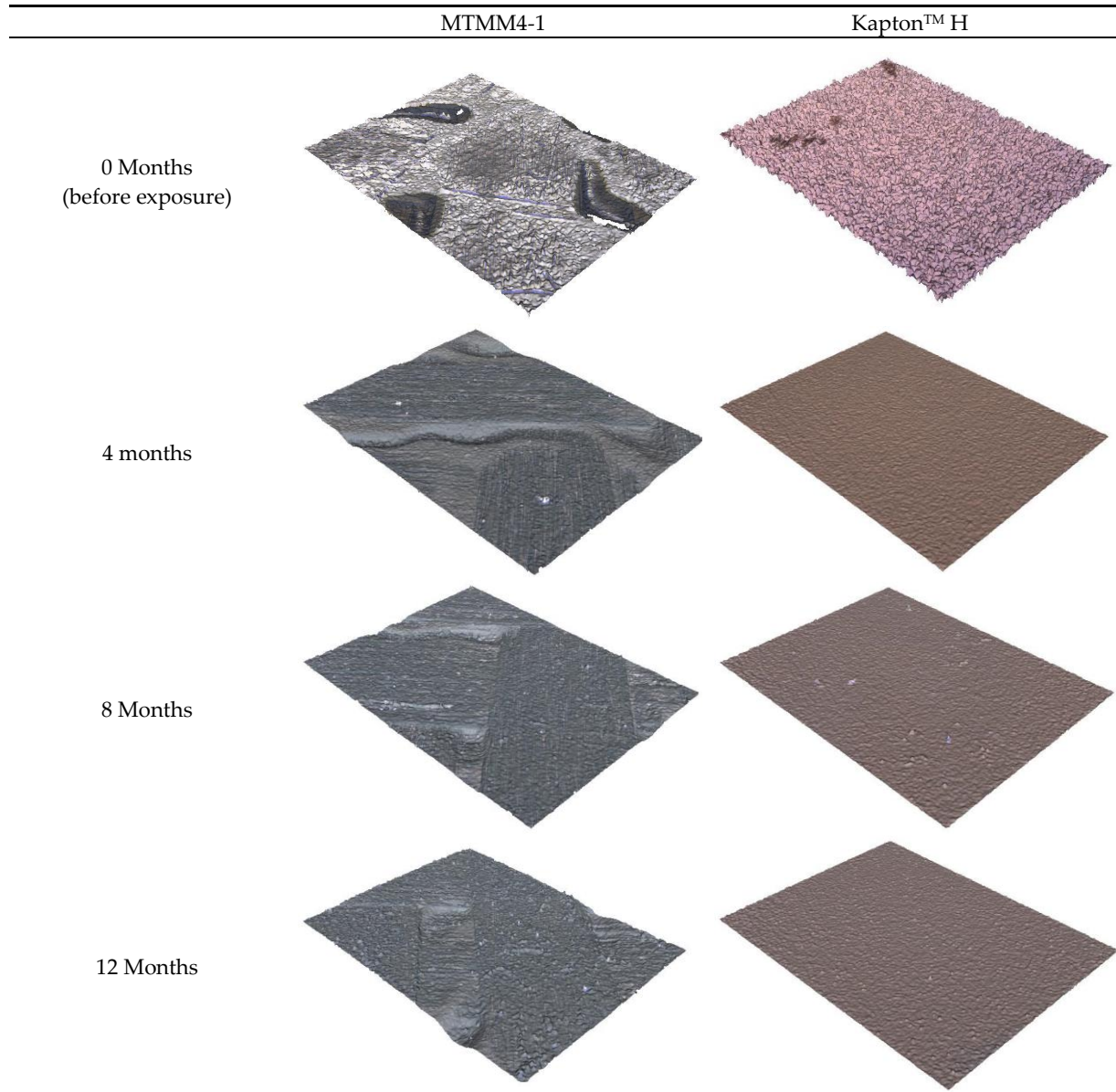
**Figure S1.** Examples of applications of deployable structures.

**Table S1.** Microscopy for cured laminate surface with MTMM4-1 content and virgin Kapton™ H following exposure to AO in simulated space conditions for a period of 12 months.

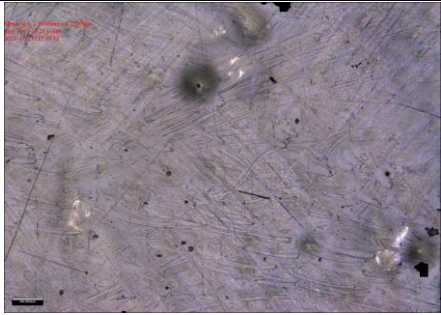
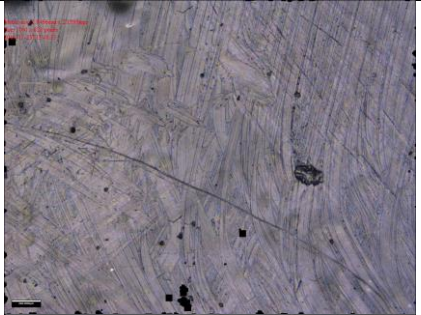
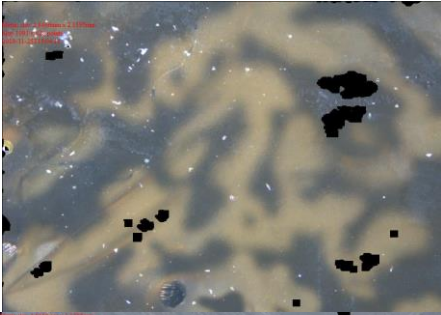


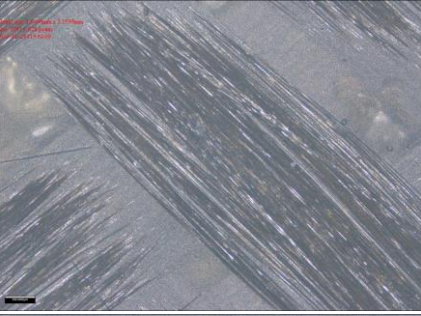
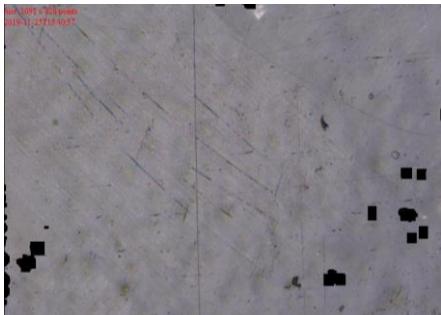


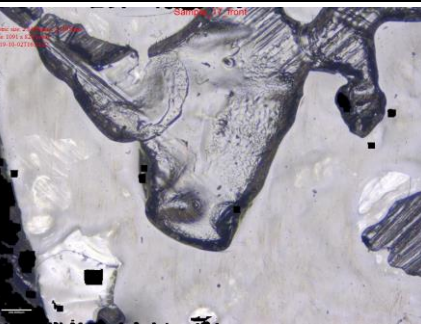
	MTM44-1	Kapton™ H
0 Months (before exposure)		
4 months		
8 Months		
12 Months		



**Table S2.** 3D Topographical analysis for cured laminate surface with MTMM4-1 content and virgin Kapton™ H following exposure to AO in simulated space conditions for a period of 12 months.



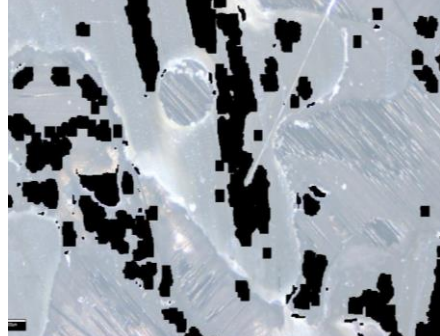
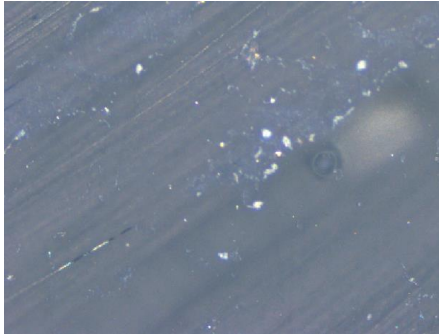
**Table S3.** Microscopy for cured laminate surfaces as a function of POSS content following exposure to AO in simulated space conditions for a period of 12 months.

Time of AO exposure	15025030	14824835
0 Months (before exposure)		
4 months		
8 Months		
12 Months		
	145245310	140240320
0 Months (before exposure)		

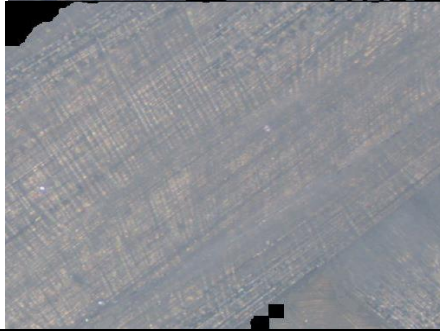
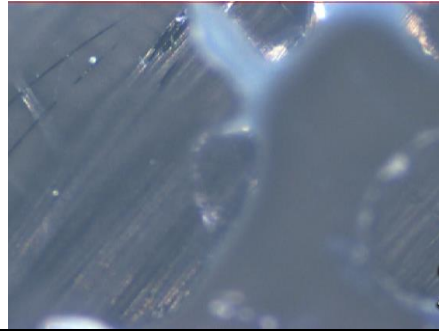
4 months



8 Months



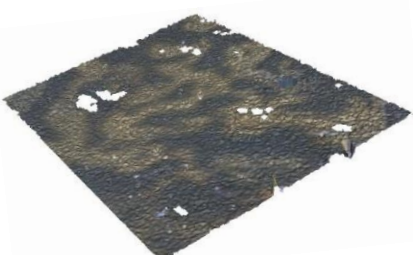





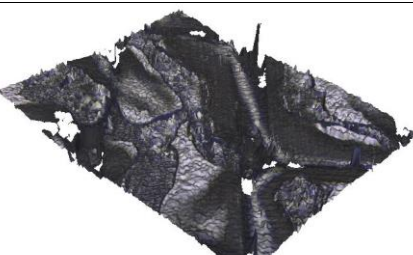
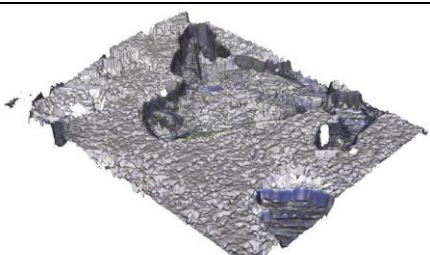
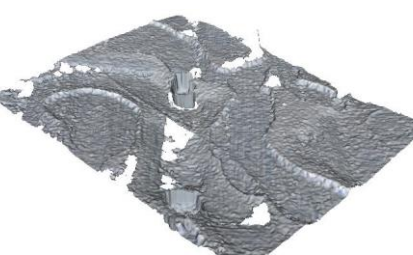



12 Months

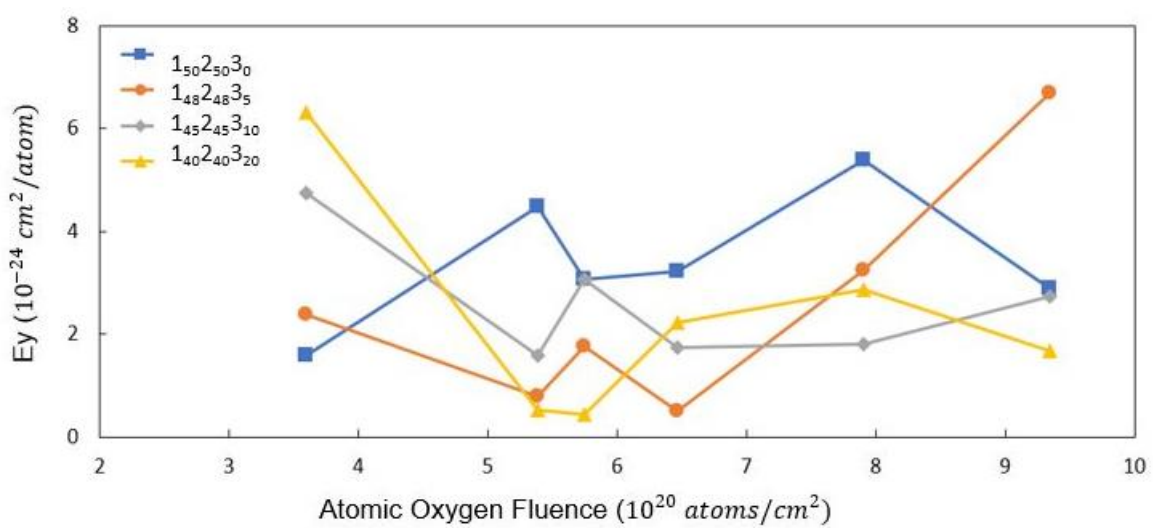
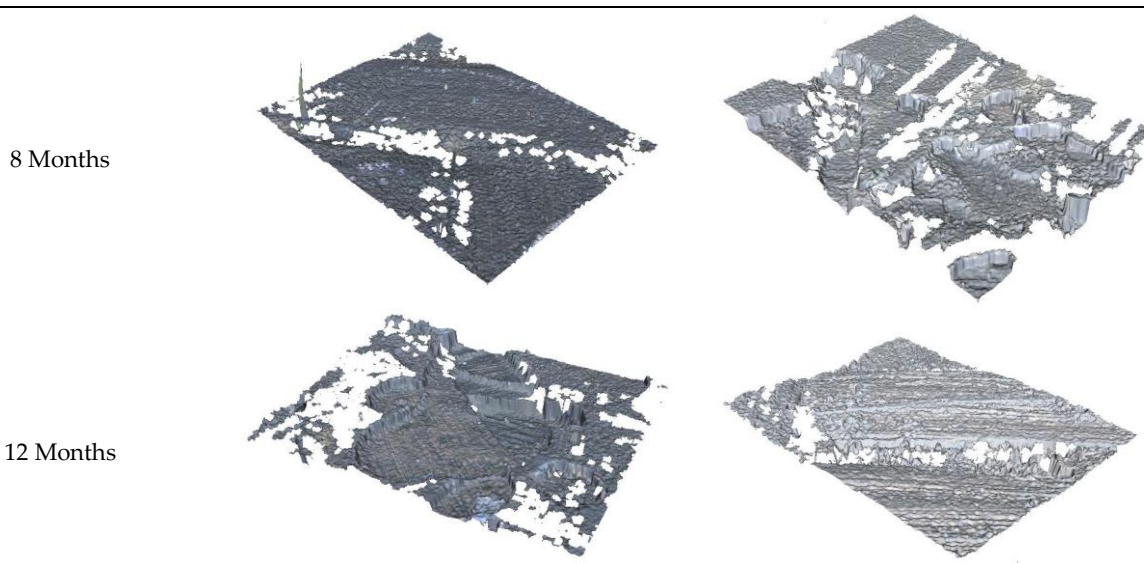




**Table S4.** 3D Topographical analysis for cured laminate surfaces as a function of POSS content following exposure to AO in simulated space conditions for a period of 12 months.

AO exposure	15025030	14824835
0 Months (before exposure)		
4 months		
8 Months		
12 Months		
AO exposure	145245310	140240320
0 Months (before exposure)		
4 months		





**Figure S2.** Erosion yield obtained for all the POSS content samples after exposure.

**Table S5.** Characteristic FTIR of the absorbance bands for the cured 145245310 samples before and after 12 months of exposure in simulated LEO.

Wavenumber ( $cm^{-1}$ )	Intensity	Functional Group
1100	Medium	POSS Cage Si-O-Si, asymmetric stretch
1450	Medium, Sharp	Aromatic ring, C=C stretch
1725	Strong, Sharp	Saturated carbonyl, C=O stretch
2850	Medium	Oxirane ring, C-H stretch
2920	Medium	Aliphatic amine, N-H stretch
3500	Strong, Broad	Secondary alcohol, O-H stretch