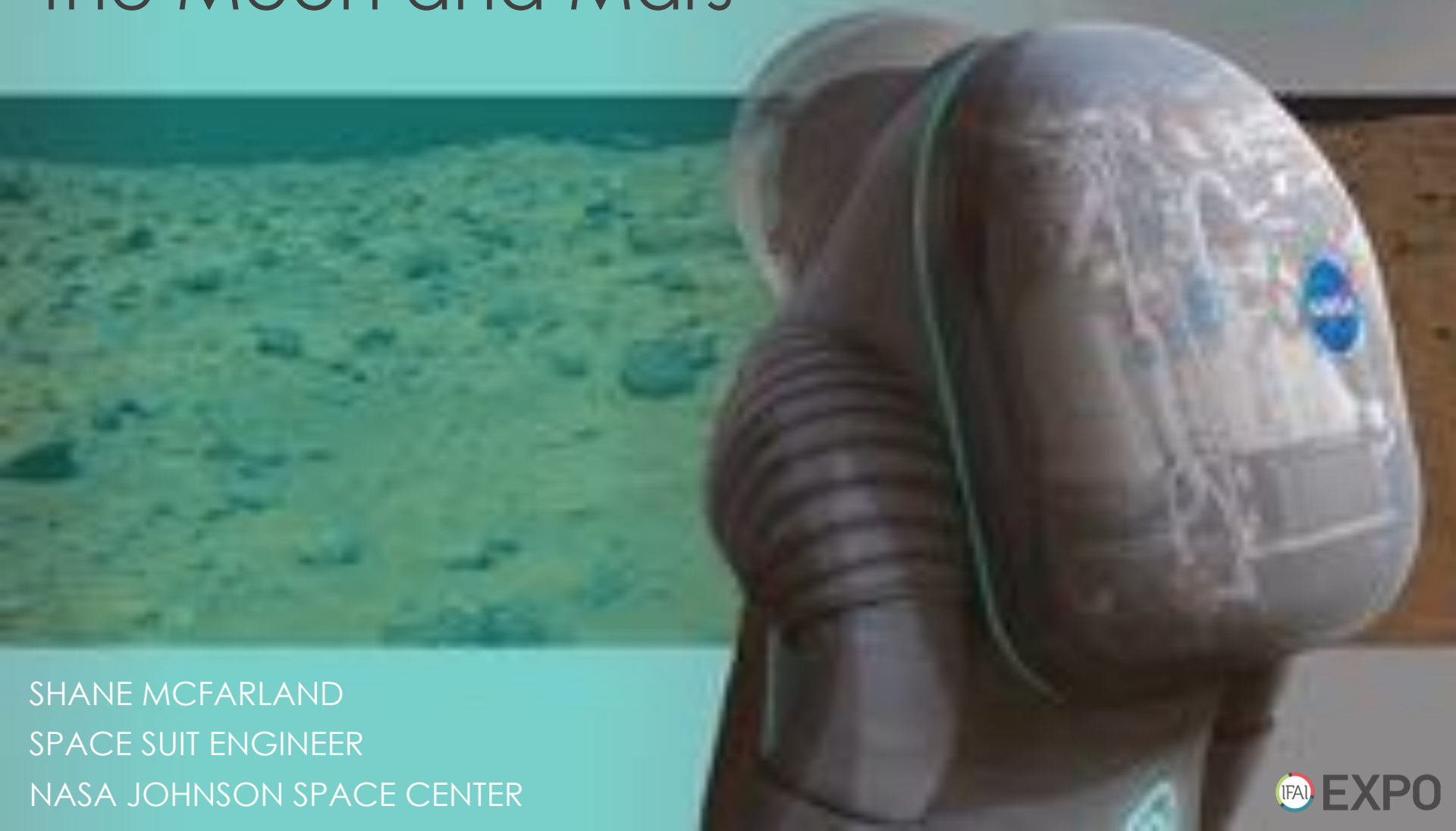


Developing the Next- Generation Space Suit for the Moon and Mars



SHANE MCFARLAND
SPACE SUIT ENGINEER
NASA JOHNSON SPACE CENTER







































Thermal microencapsulated garment cover (outer fabric)

Microencapsulated phase change material

Thermal microencapsulated garment insulation (middle layer aluminum Mylar)

Thermal microencapsulated garment insulation (middle layer aluminum Mylar)

Liquid Cooling Garment (inner fabric)

Thermal microencapsulated garment liner (innermost layer)

Release Cloth

Release garment bottom (bottom-most layer)

























Photo: Ross Lockwood
Disclaimer: Not a real space suit!





THE MARTIAN

Credit: 20th Century Fox
Disclaimer: Not a real space suit!

A suit made for moon walking

Something on American flag placed in the
 same house. Apparent. Some time to
 protect both the flag and the house by
 a 21 hour security guard and military
 personnel deployed by the Post.





AMERICA'S MOST ACTIVE WOMEN CHOOSE PLAYTEX PANTY GIRDLES!

It shows and feels exactly what nothing else! Warm, comfy, all women fashion!

Playtex Panty Girdles are the only ones that give you the feeling of being warm and comfortable. They are made of a special fabric that is soft and smooth, and they are designed to fit you perfectly. They are the only ones that give you the feeling of being warm and comfortable.

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INTRODUCING

Playtex *living* Bra

New...the designers who performed such miracles with Playtex Girdles
bring you an exciting new bra of elastic and nylon!



*Exclusive
criss-cross sides
self-adjust
for Fabulous Fit!*

*Sculptured Nylon
gently
cups and up!*

*Criss-cross elastic
front dips low,
divines divinely!*

*Elastic back
sets lower
and stays lower!*









BIOLOGICAL DATA		
DATE	TIME	LOCATION

DATE	TIME	LOCATION
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PUT CHECK MARKS AND DIRECTIONAL ACTION MARKS

[illegible]









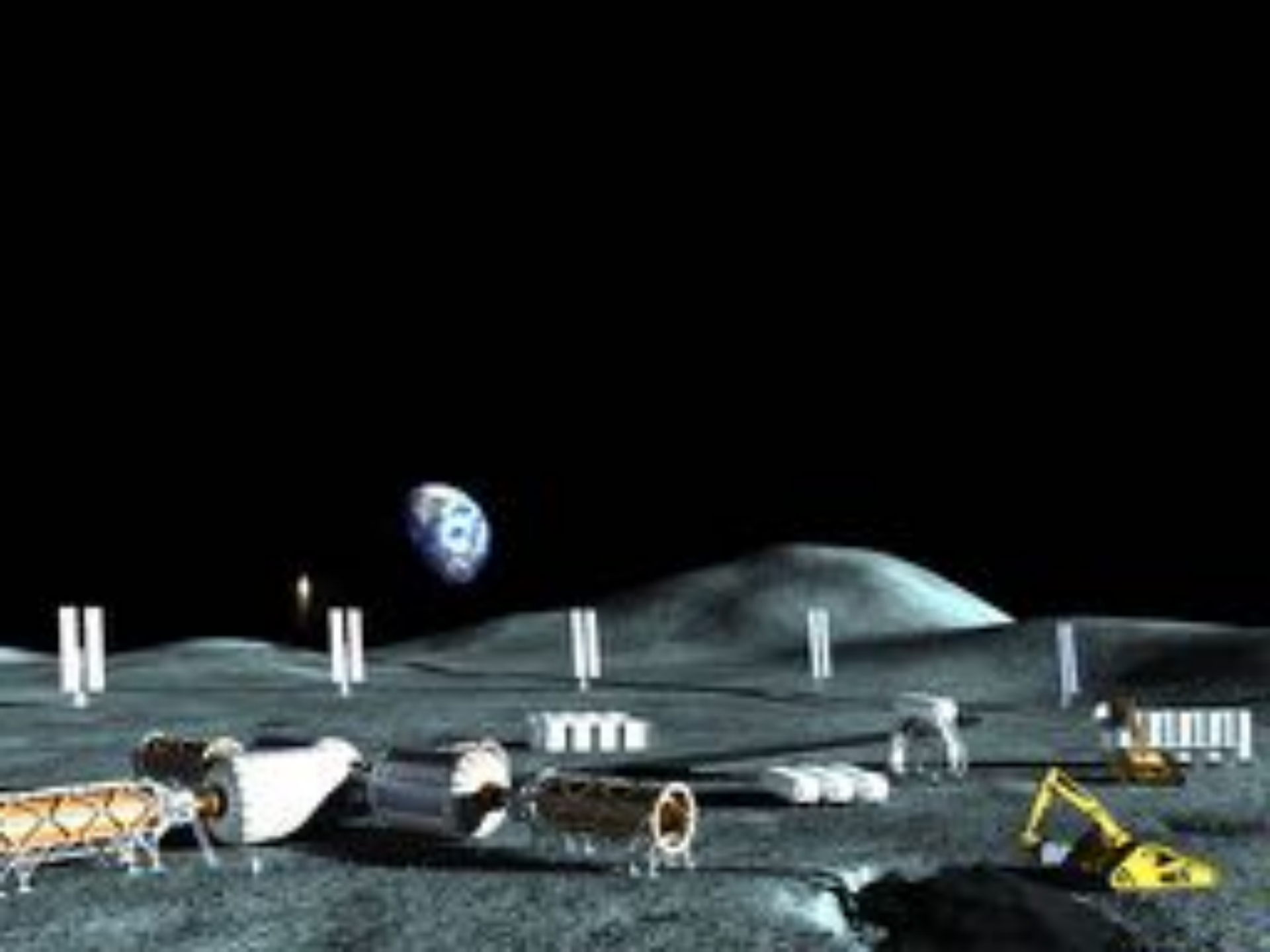




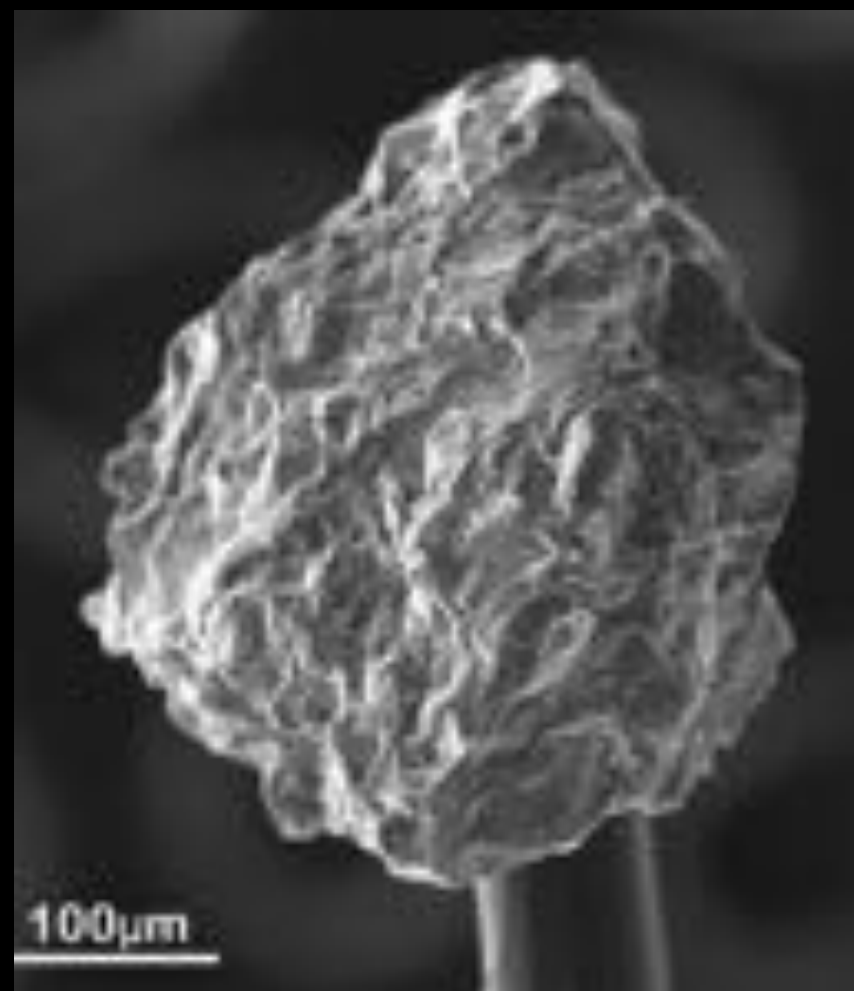
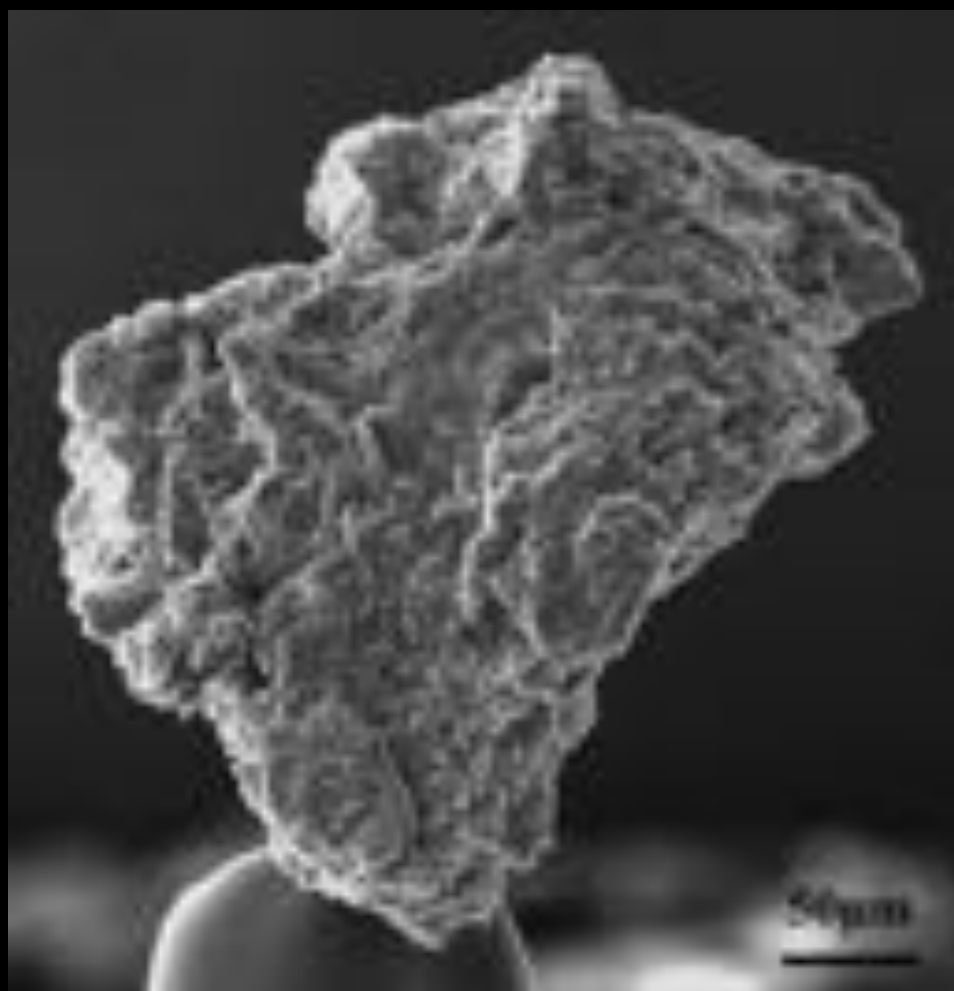


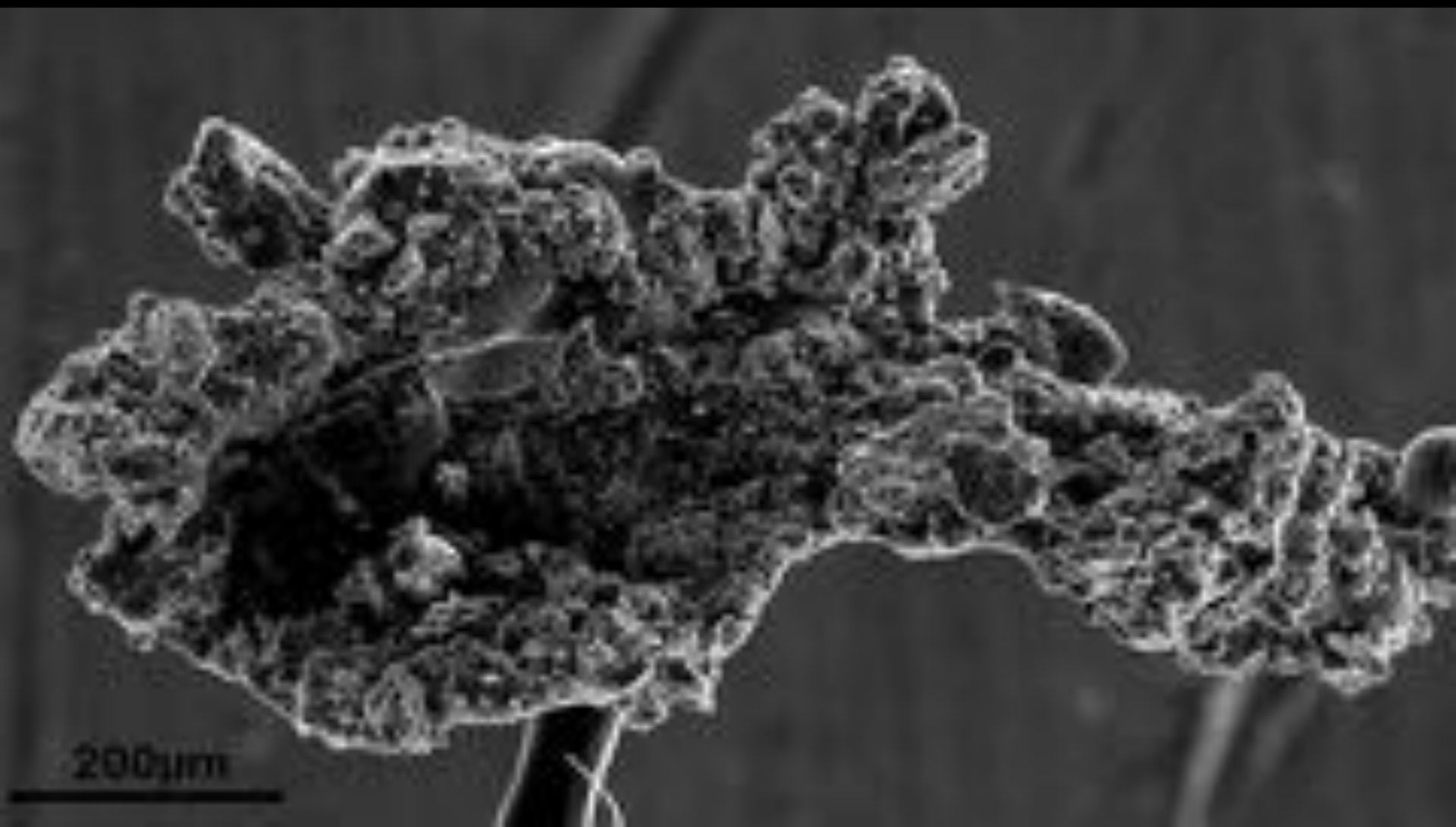












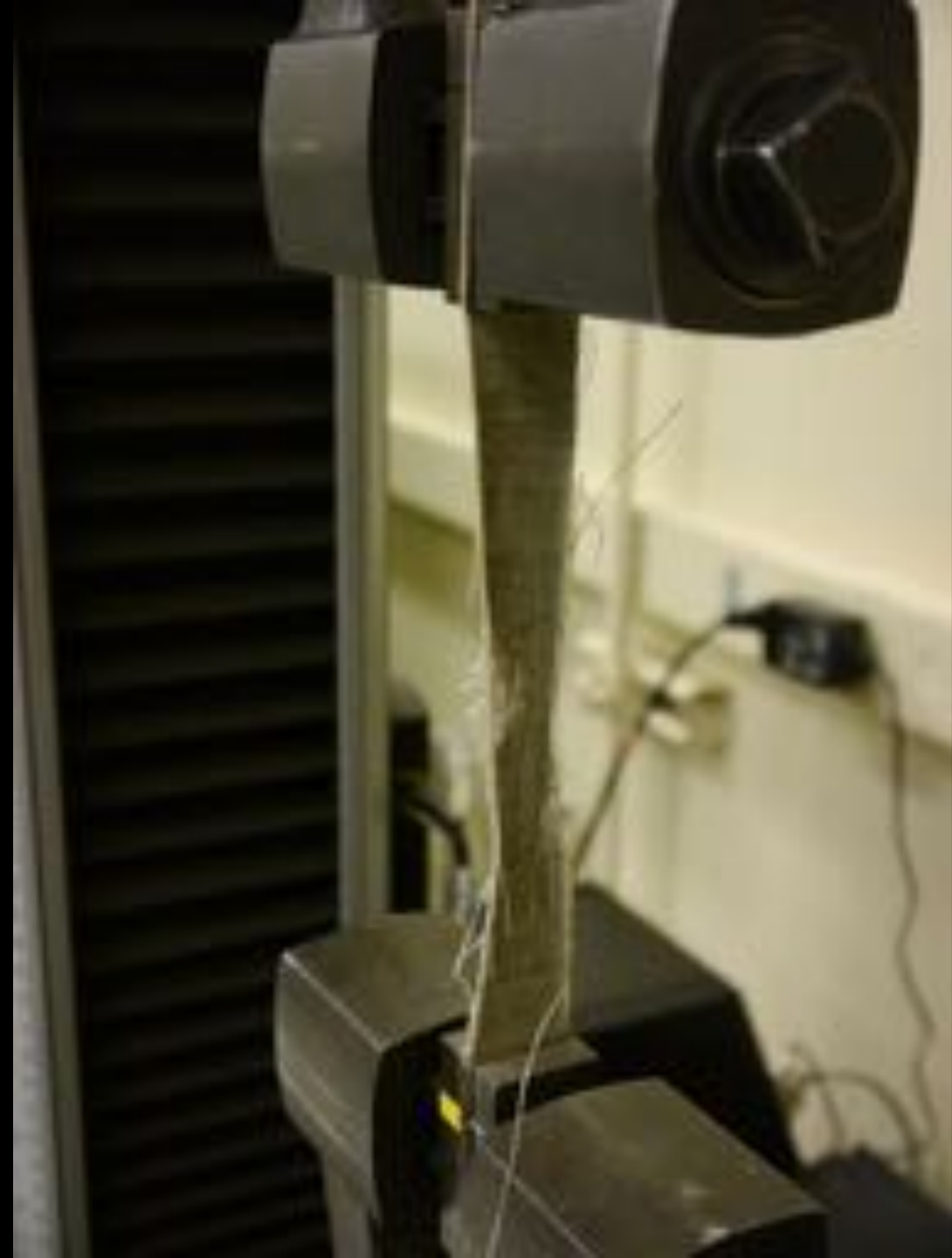














200 μm

EDT = 1.50 kV

WD = 5.7 mm

Mag = 50.0x

Signal A = 50.2 mm = 2.311 mm

Reference Mag = Polaroid 541

Orbital Position 4.17

Date: 13 Sep 2016

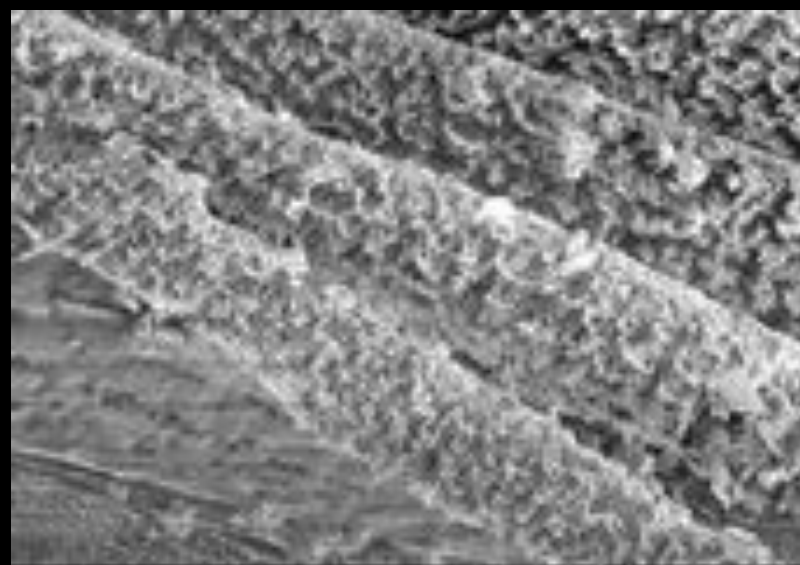
Chamber = 6.00e-003 Pa

Vacuum Mode = High Vacuum



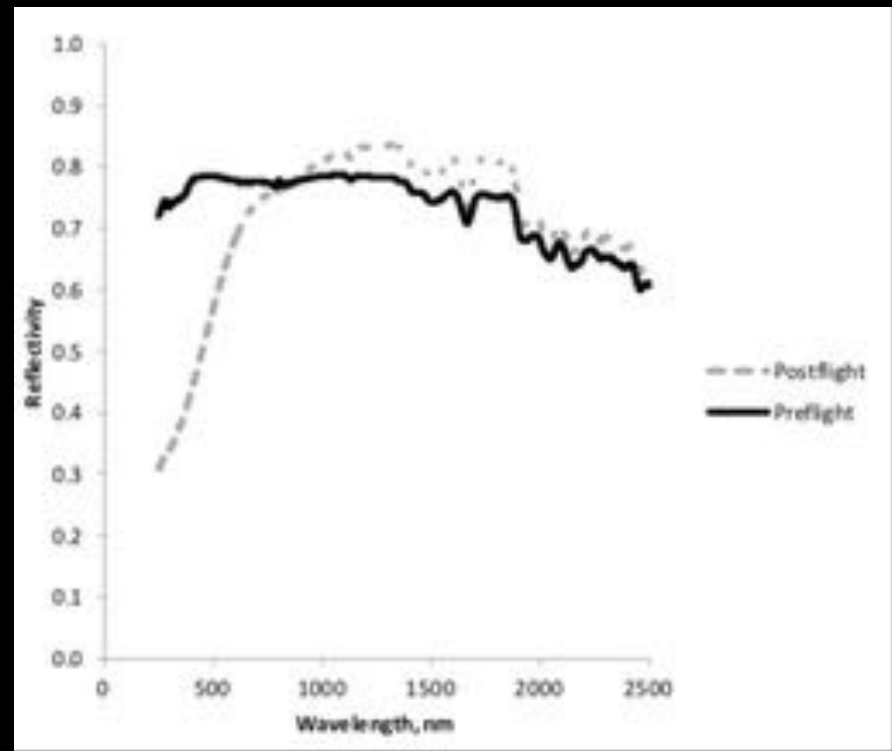
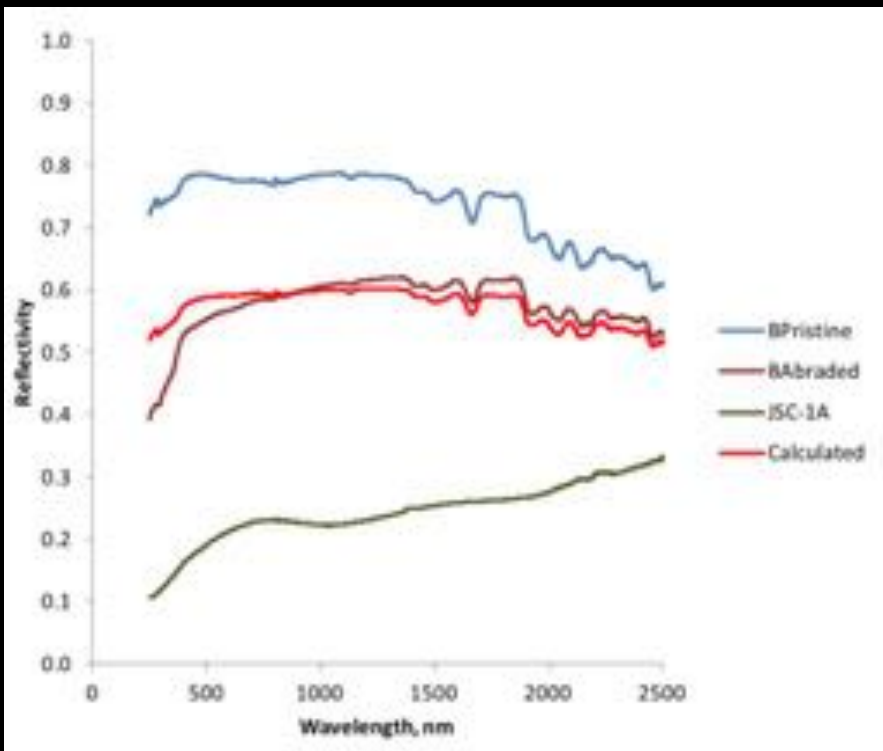


DA-5center 1.0kV 14.0mm x2.50k SE(M) 9/23/2011 20.0um



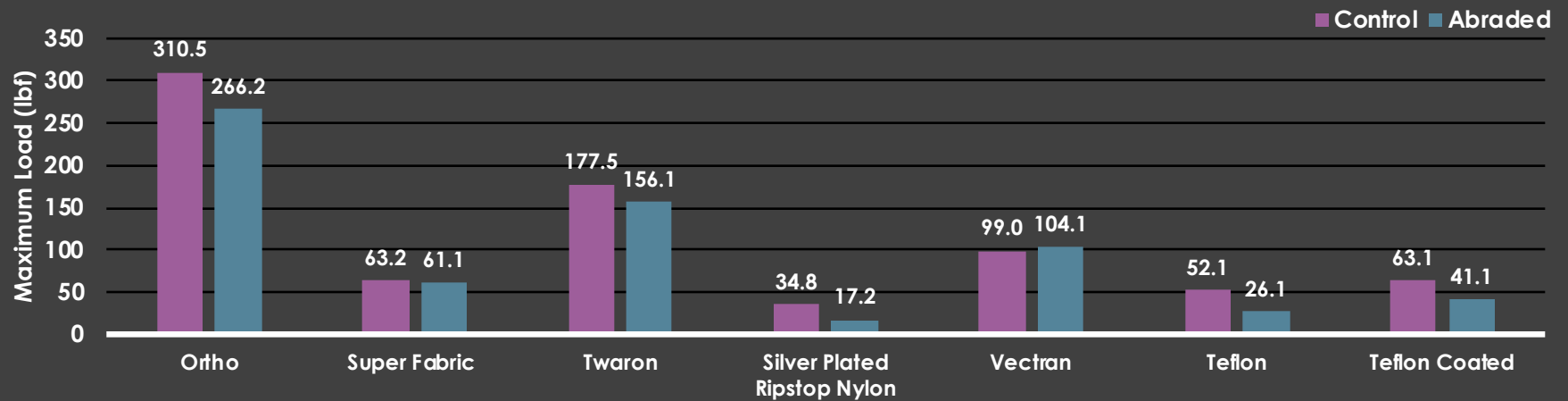
DA-5center 1.0kV 14.1mm x2.50k SE(M) 9/23/2011 20.0um





Per ASTM D5035

Break Force





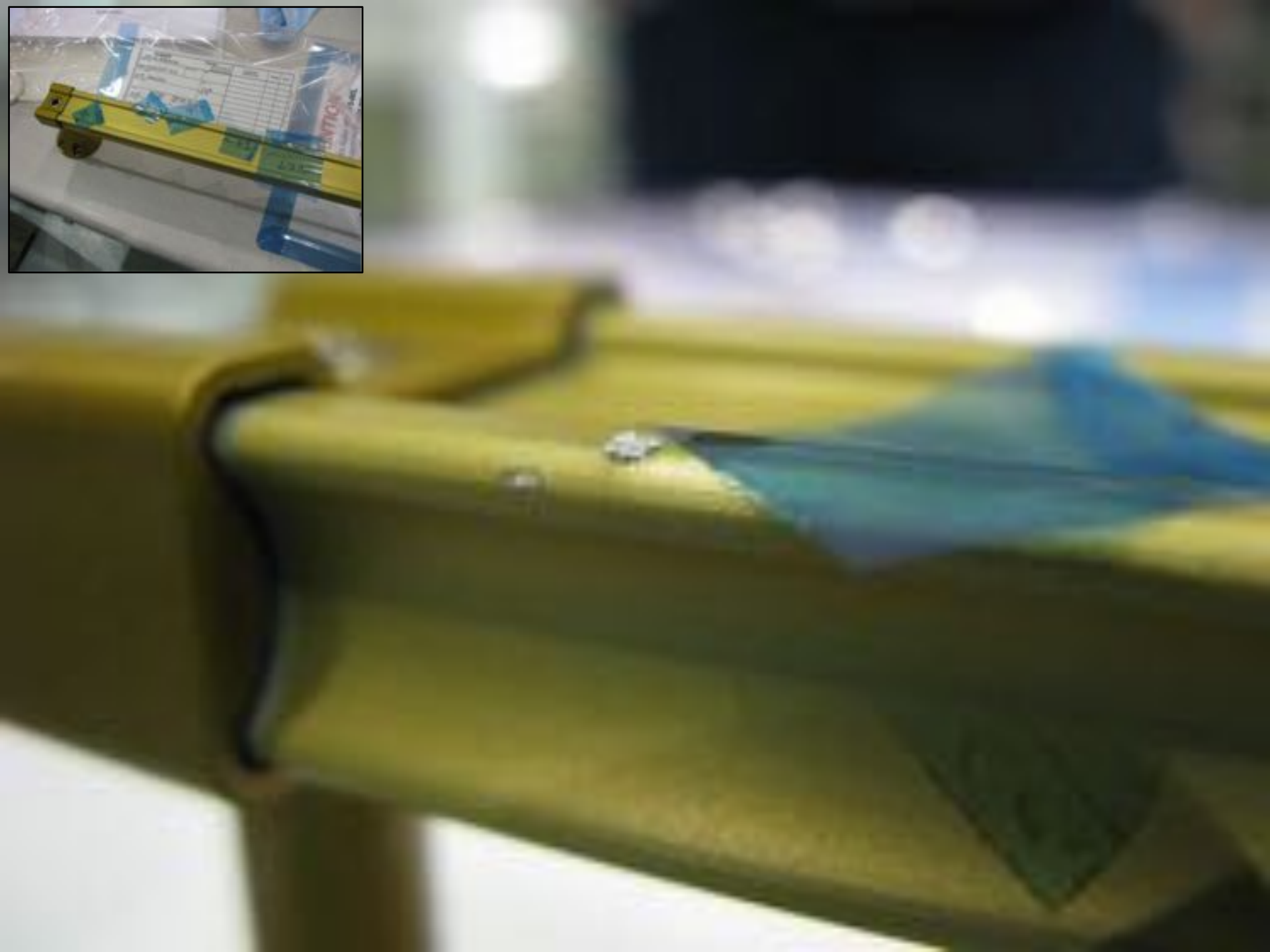
- ▶ Dust EPG features? (Ben)















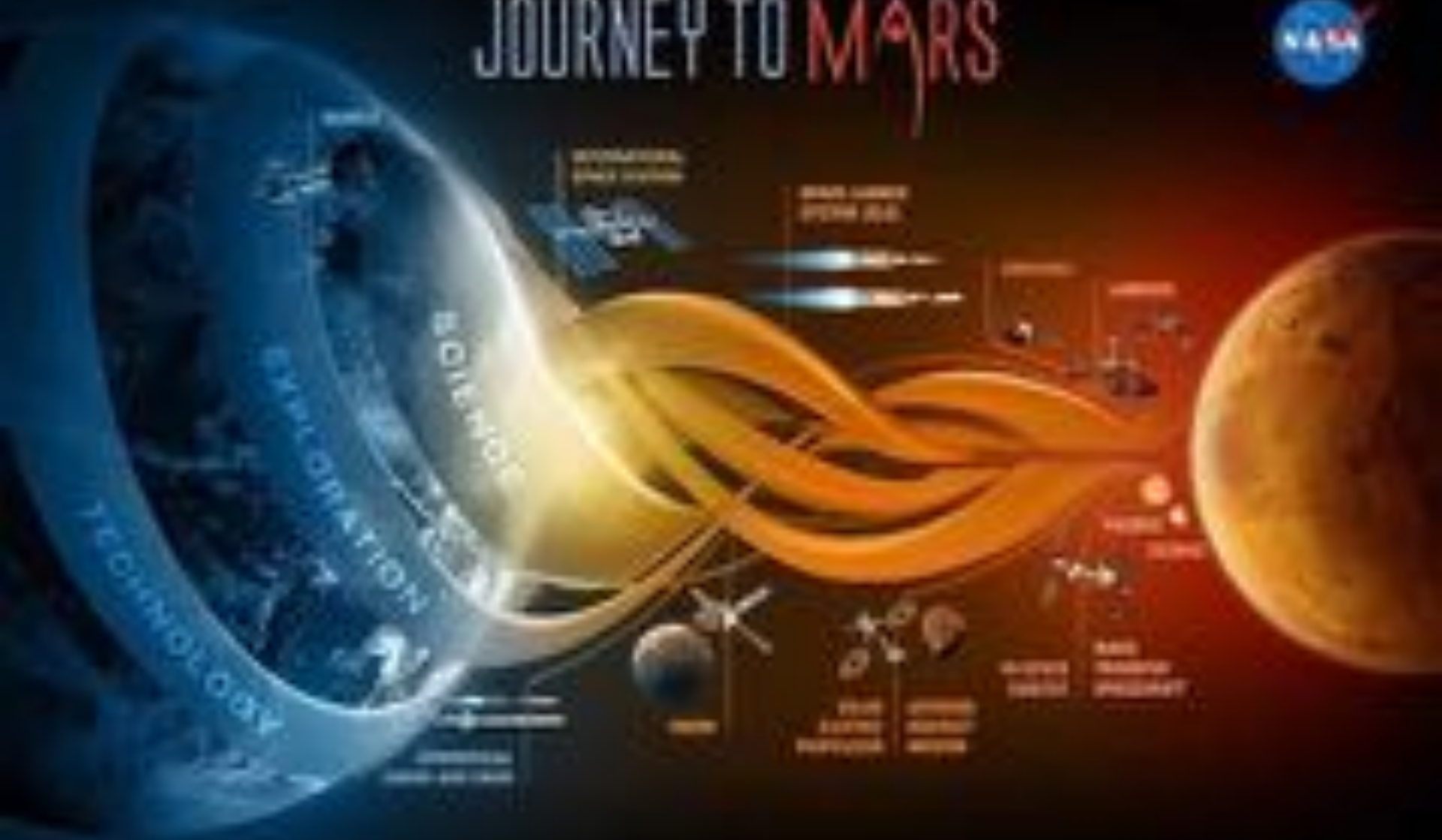
Credit: Warner Brothers







JOURNEY TO MARS





Scale: ~1:100,000,000























You are here







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NASA-Johnson Space Center
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All uncredited photos
Credit NASA



