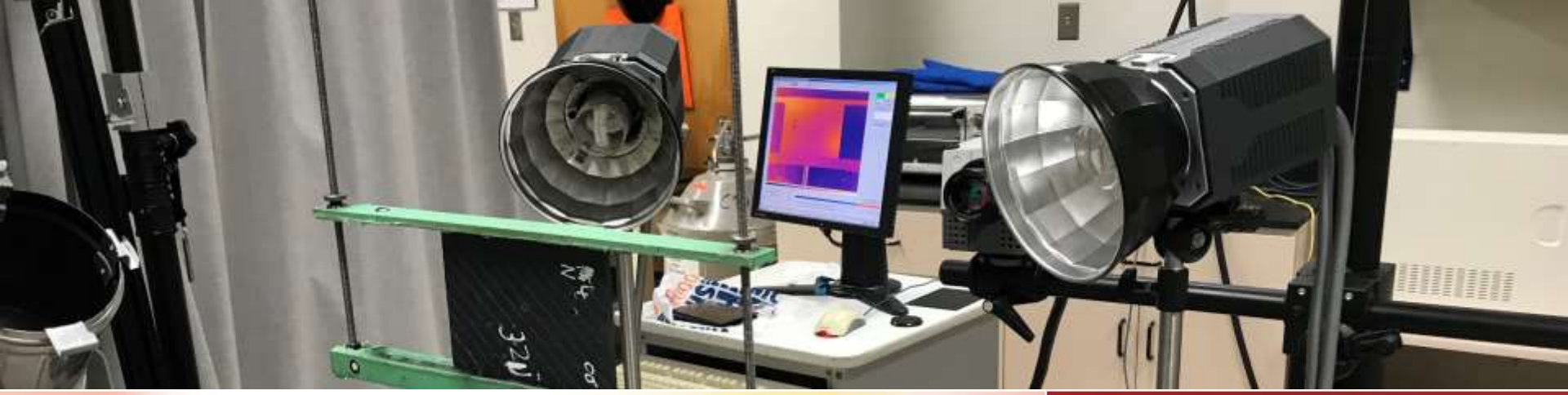

Inspection of Cranfield specimens by pulsed thermography

MIVIM

Multipolar Infrared Vision Infrarouge Multipolaire

by

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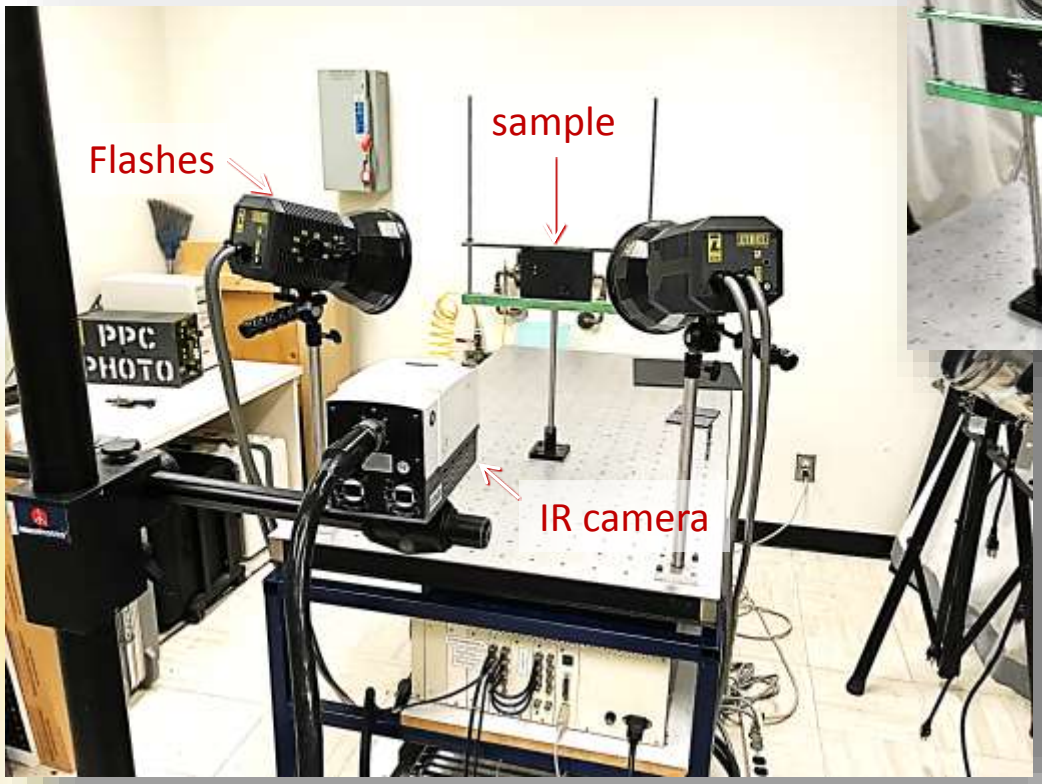
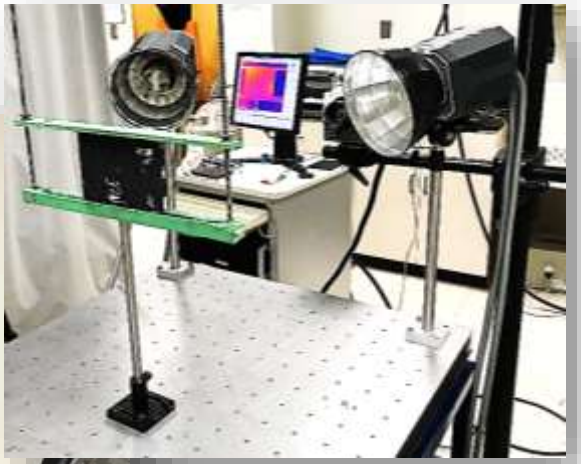
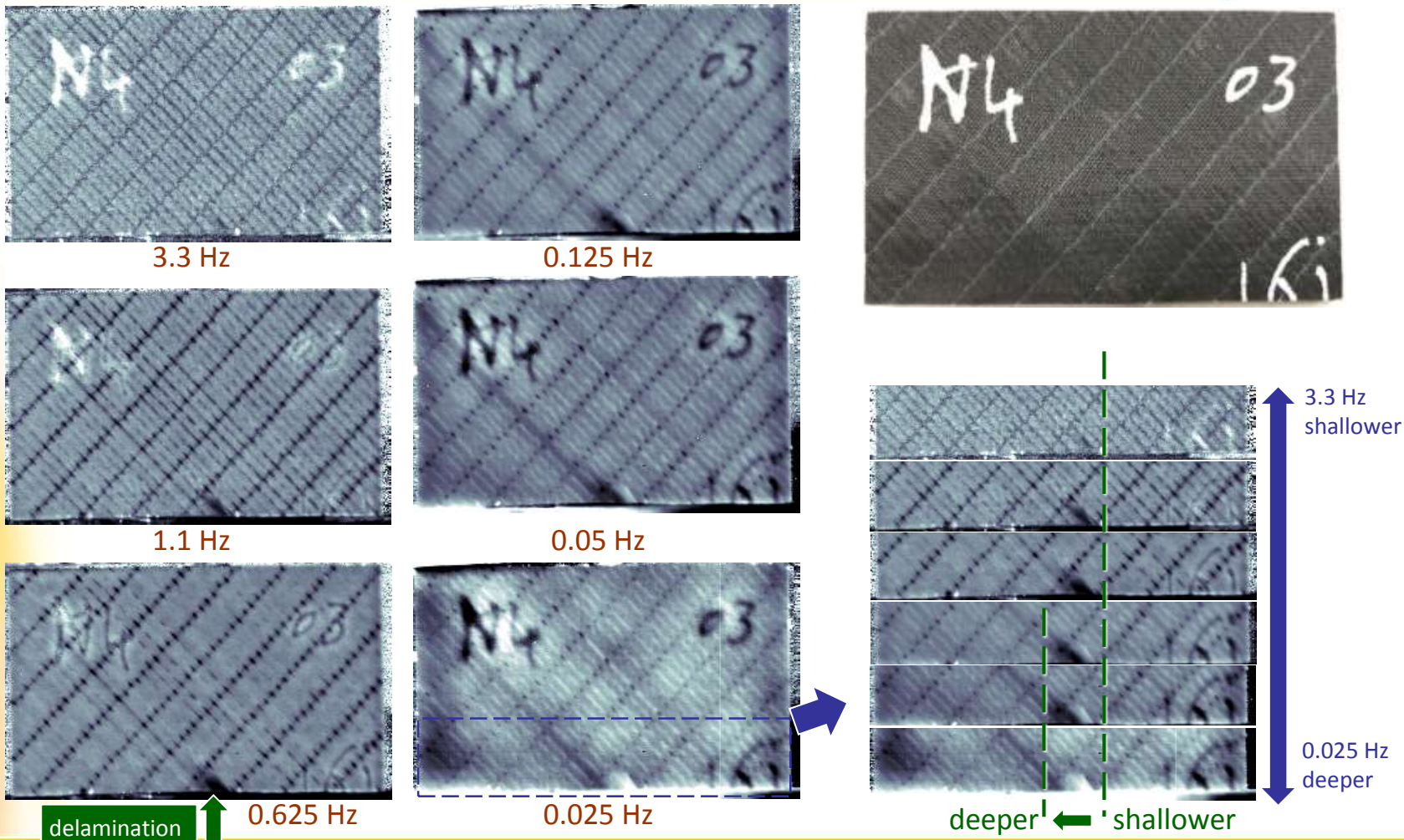
UNIVERSITÉ LAVAL

Experimental setup

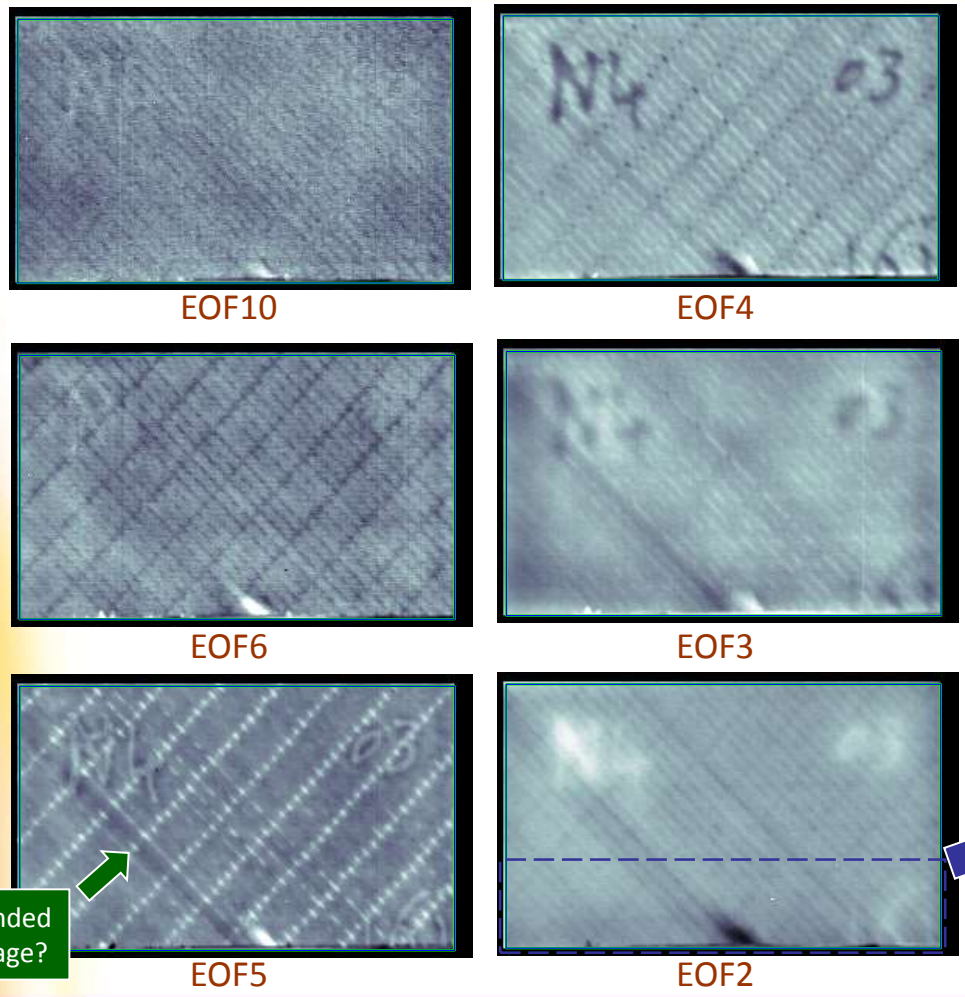


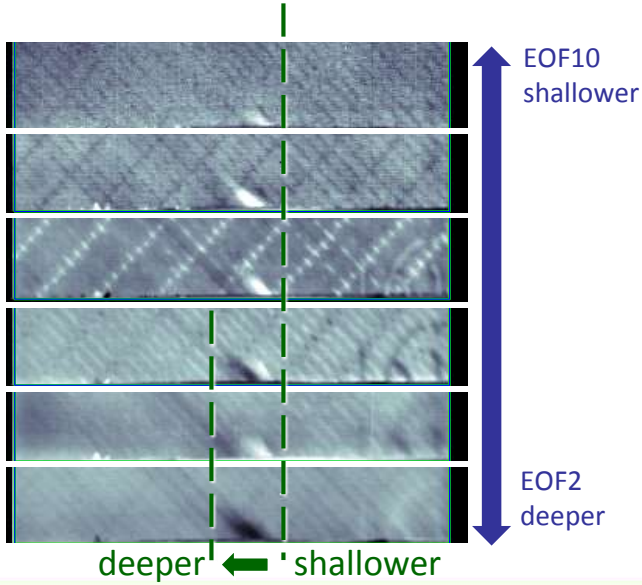


Sample 03: Reflection *front* face, PPT

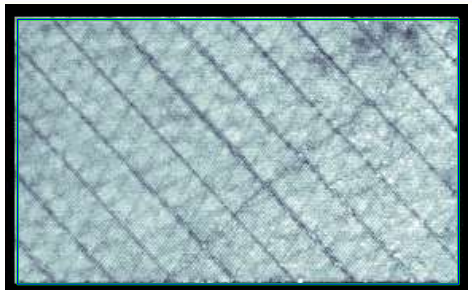


Sample 03: Reflection *front* face, PCT

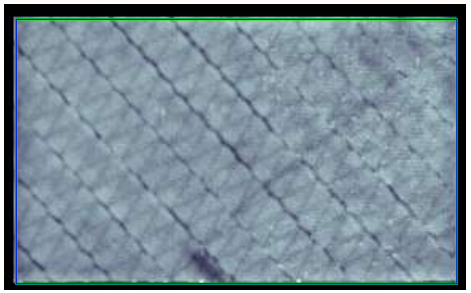




Sample 03: Reflection *rear* face, PPT

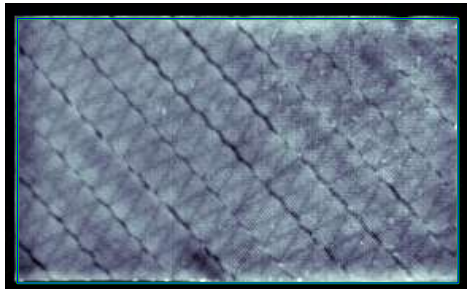


3 Hz

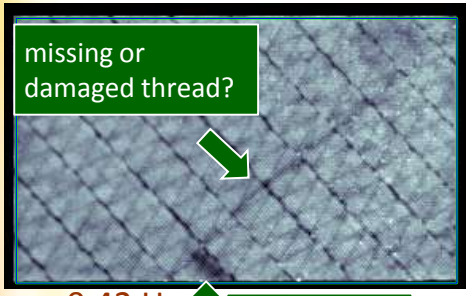


0.2 Hz

0.82 Hz

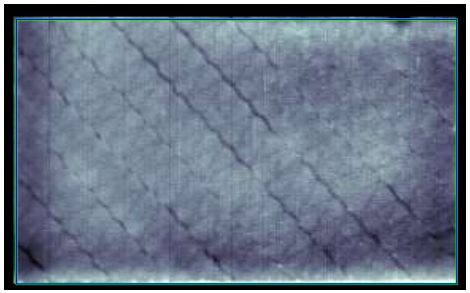


0.1 Hz



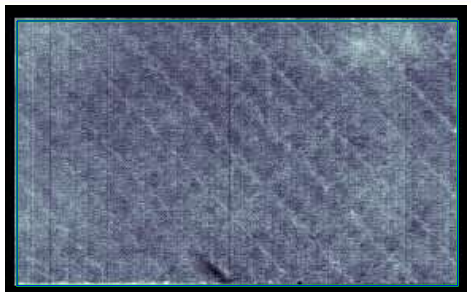
0.42 Hz

delamination

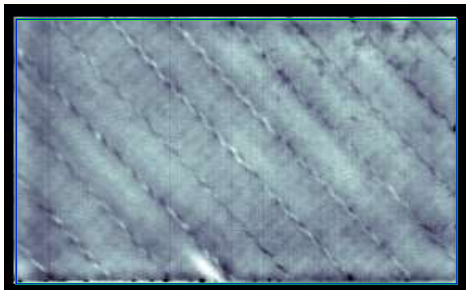


0.025 Hz

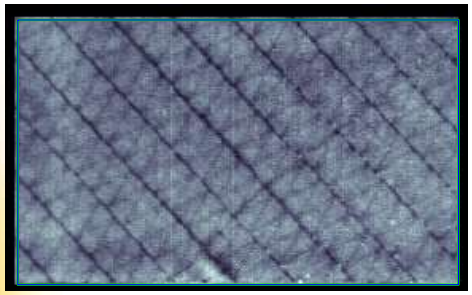
Sample 03: Reflection *rear* face, PCT



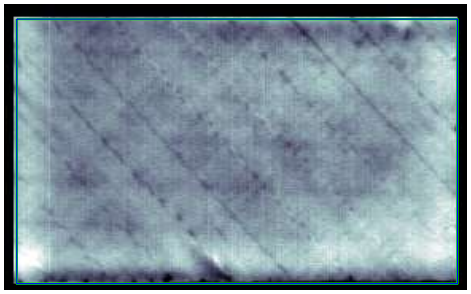
EOF10



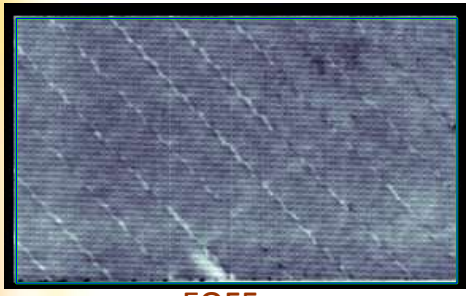
EOF4



EOF6



EOF3

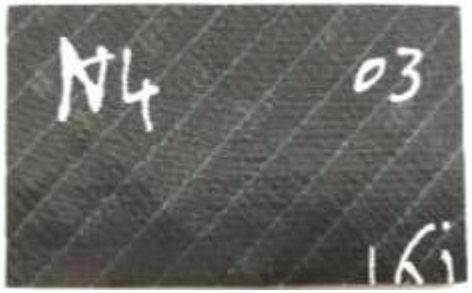


EOF5

EOF2

Sample 03: Transmission

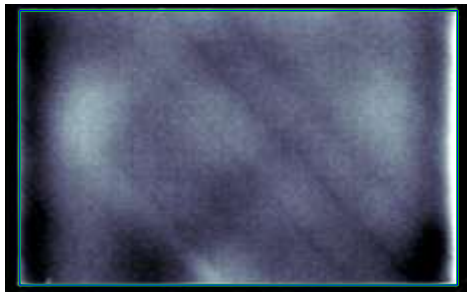
Front face



PPT

0.05 Hz

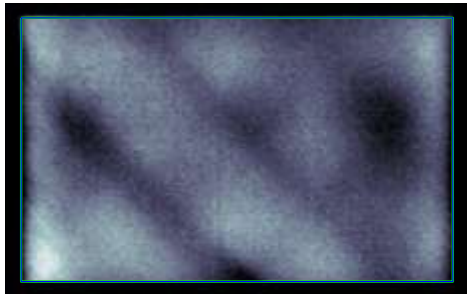
PCT



EOF3

Rear face

0.05 Hz

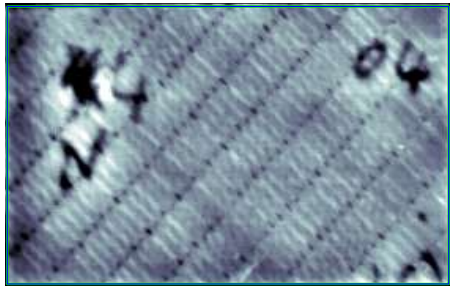


EOF3

Sample 04: Reflection *front* and *rear* faces

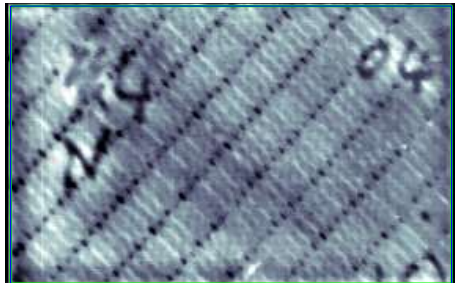
Front face

PPT



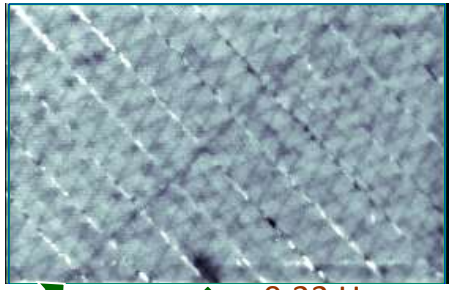
0.05 Hz

PCT

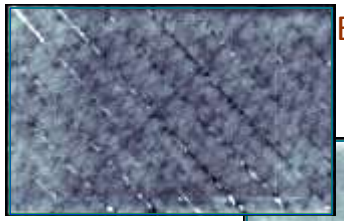


EOF4

Rear face

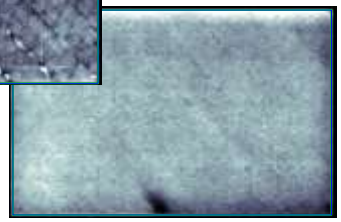


0.33 Hz



EOF8

EOF2



missing or damaged thread?

delamination

Sample 04: Tranmsission *front* and *rear* faces

Front face

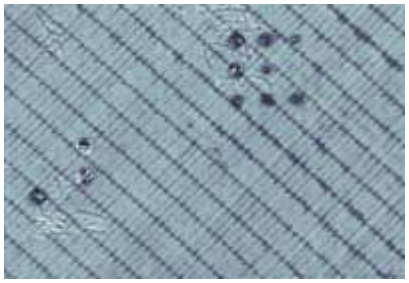
PPT

0.05 Hz

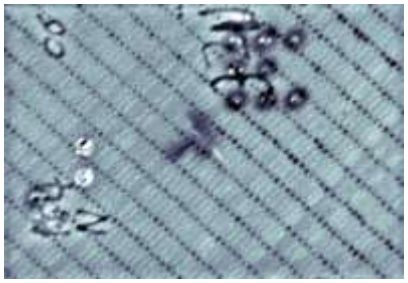
Rear face

0.33 Hz

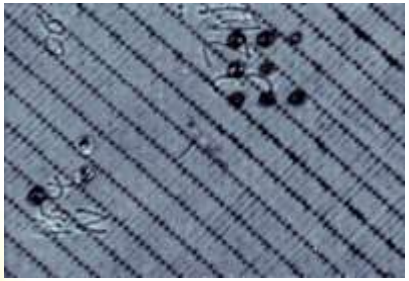
Sample 06: Reflection *front* face, PPT



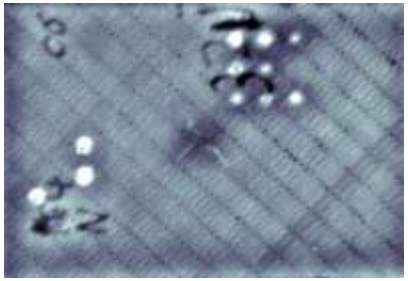
2.5 Hz



0.225 Hz



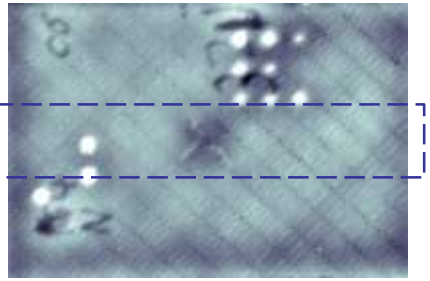
1.0 Hz



0.05 Hz

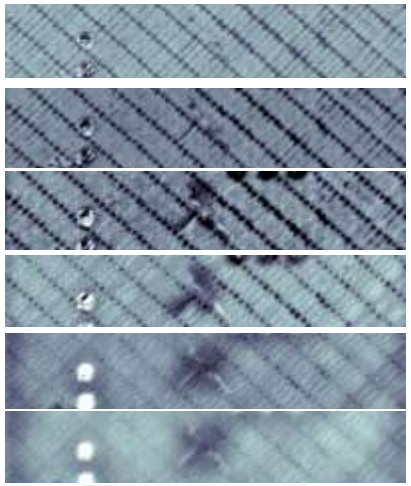
delamination

0.55 Hz



0.025 Hz

surface damage



internal damage

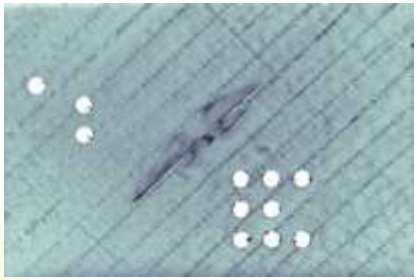
2.5 Hz
shallower

0.025 Hz
deeper

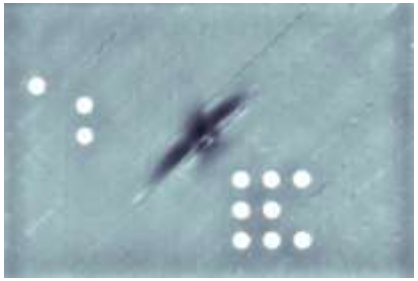
Sample 06: Reflection *rear* face, PPT

4.0 Hz

0.125 Hz

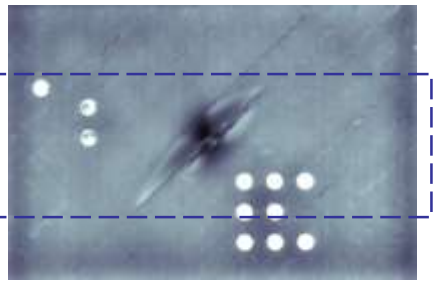


2.2 Hz

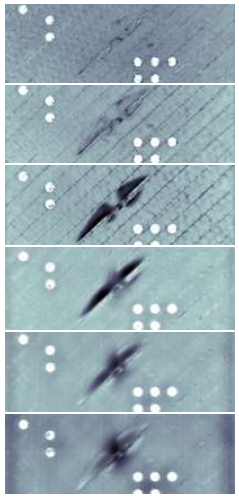


0.05 Hz

0.925 Hz



0.025 Hz



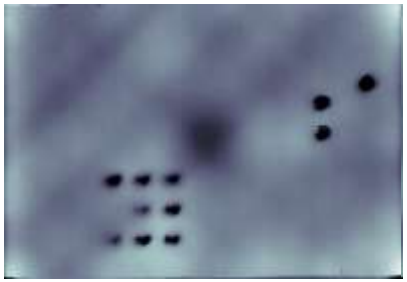
4.0 Hz
shallower

0.025 Hz
deeper

Sample 06: Transmission *front* and *rear* faces

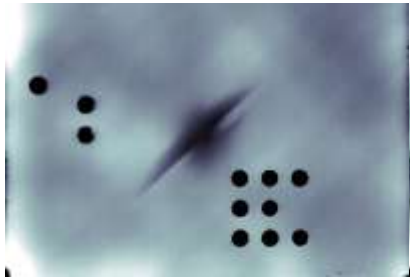
Front face

PPT



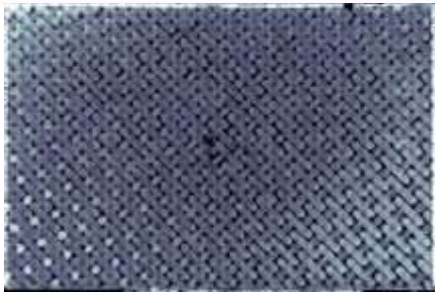
0.025 Hz

Rear face

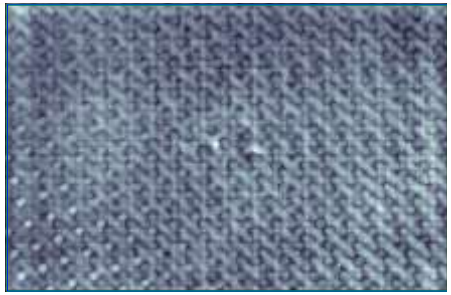


0.05 Hz

Sample A4: Reflection *front* face, PPT + PCT

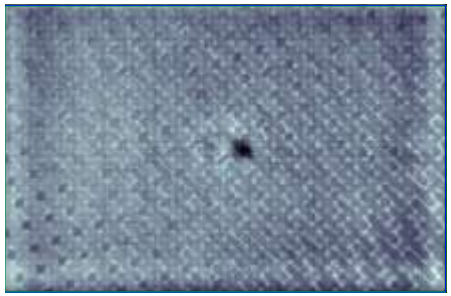


2.1 Hz

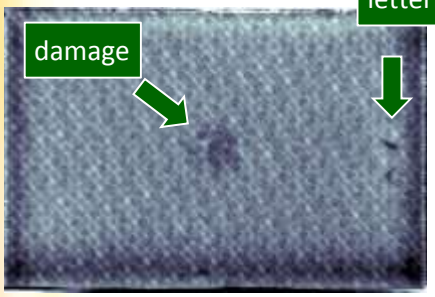


EOF10

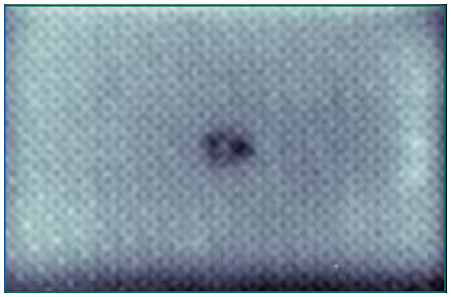
0.575 Hz



EOF8

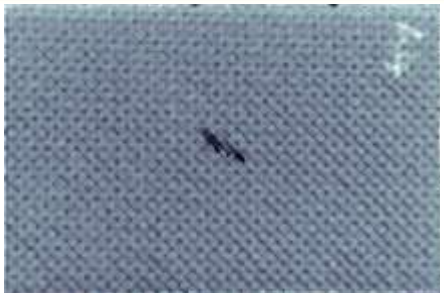


0.05 Hz

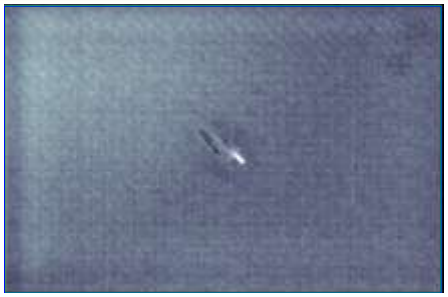


EOF2

Sample A4: Reflection *rear* face, PPT + PCT

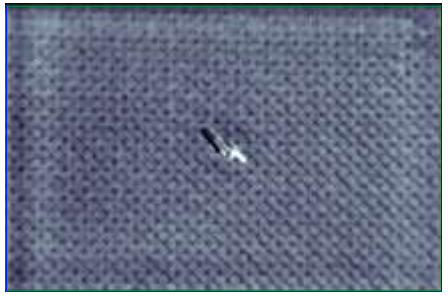


2.1 Hz

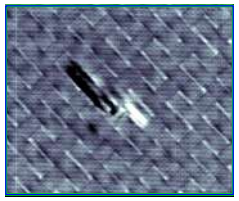


EOF11

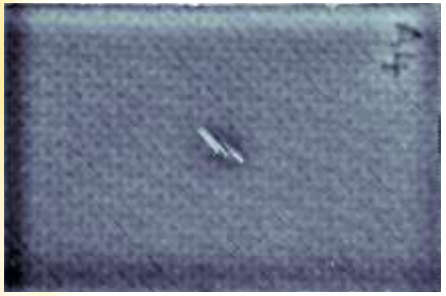
0.575 Hz



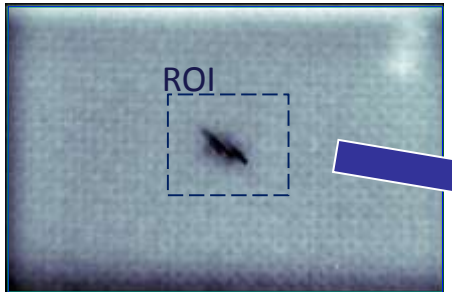
EOF8



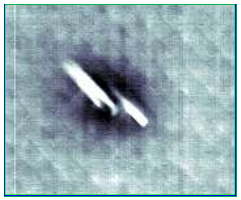
EOF6



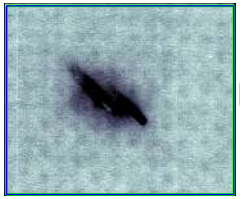
0.05 Hz



EOF2



EOF3

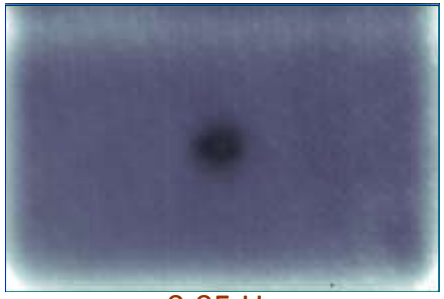


EOF2

Sample A4: Transmission

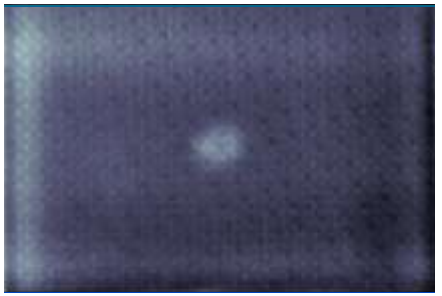
Front face

PPT



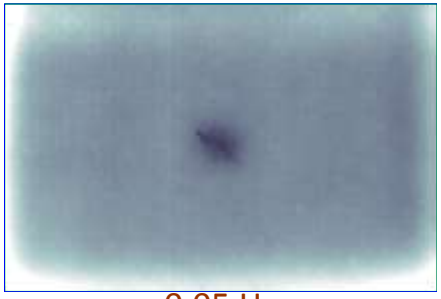
0.05 Hz

PCT

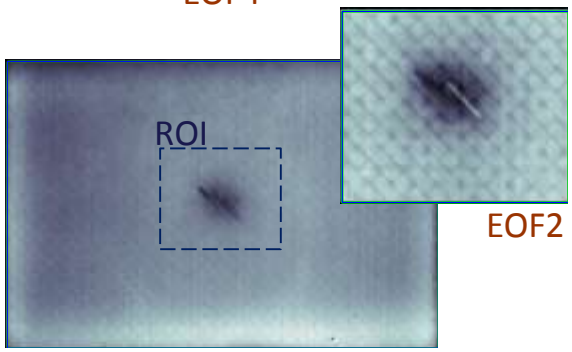


EOF4

Rear face



0.05 Hz



EOF2

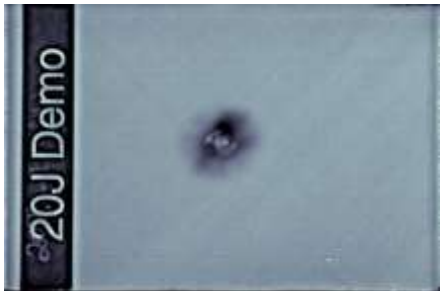
EOF3

Sample 20J: Reflection *front* face, PPT

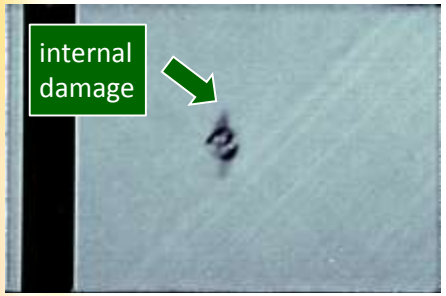
8.5 Hz

0.825 Hz

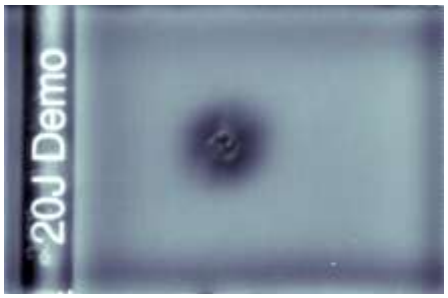
3.0 Hz



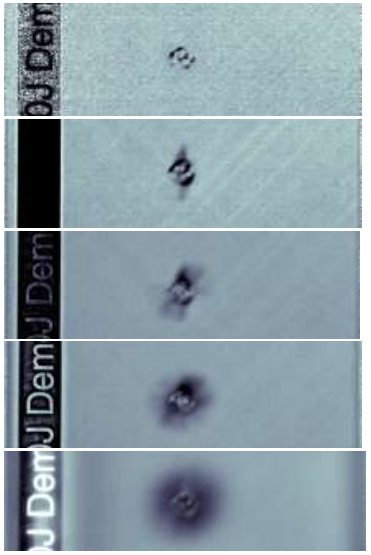
0.375 Hz



1.75 Hz



0.025 Hz



8.5 Hz
shallower

0.025 Hz
deeper

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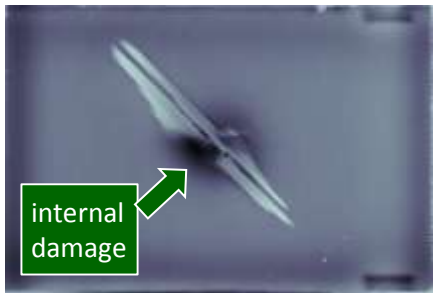
Sample 20J: Reflection *rear* face, PPT

8.5 Hz

1.175 Hz

0.3 Hz

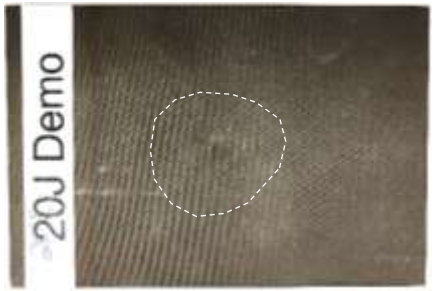
4.1 Hz



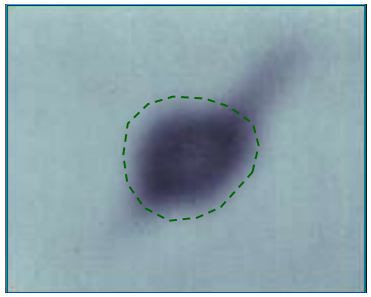
0.025 Hz

Sample 20J: Transmission

Front face

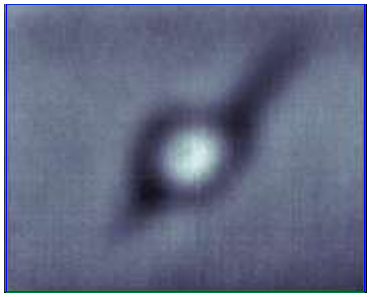


PPT



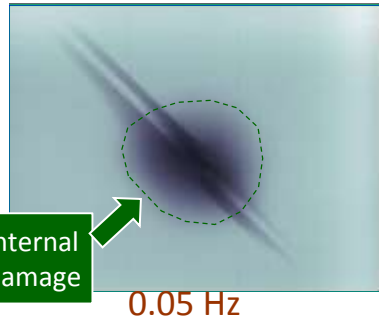
0.05 Hz

PCT



EOF4

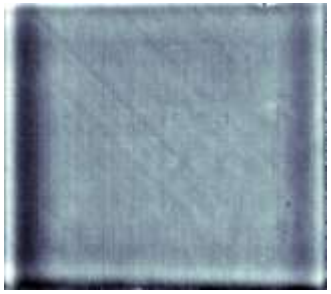
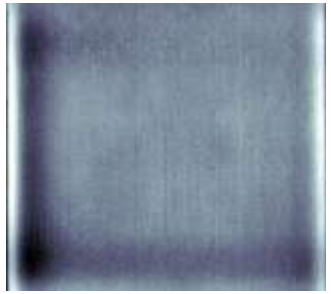
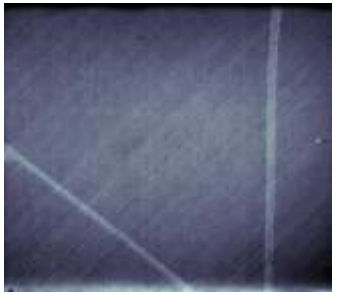
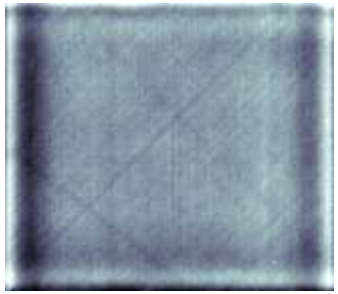
Rear face



0.05 Hz

EOF3

Sample NoName

	Reflection raw	Reflection PCT	Transmission PCT
Front face				
	1st thermogram	EOF4	EOF4
Rear face				
	1st thermogram	EOF4	EOF5