全場式紅外光譜儀

操作手冊

Focal-Plane Array Infrared Microsprctrocopy User Manual





BL14A1 紅外光束線實驗站

OPUS8.1 軟體正確開啟畫面



Hypersion3000.ows 出錯時顯示畫面

O OPUS - Operator: Admin (Administrator) - [Display - HYPERION3000.ows]	
C File Edit View Window Measure Manipulate Evaluate Display Print Macro Validation Setu 	up Help
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d Display - HYPERION3000.ows	

處理方法: 複製備份的 Hypersion3000.ows 檔案,並覆蓋原始檔案 複製檔案路徑(c:/INV-R173/Hypersion3000.ows) 覆蓋原始檔案路徑(c:/Users/Public Documents/Bruker/OPUS_8.1.29)

錯誤連線後畫面處理方法:Reboot → Reset



→回復至正確連線畫面

開啟 OPUS8.1 軟體→Validation 視窗下 Setup OVP

→執行 Measure LWN (重新連線及校正)

O OPUS - Operator: Admin (Administrator) - [Display - HYPERION3000.ows]		- 0 ×
🔿 File Edit View Window Measure Manipulate Evaluate Display Print Macro Validation	Setup Help	_ ¬ x
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<u><u>R</u>-</u>		2.3
	Setup OVP X	**
1.100	OVP Test Channel Setup OVP Test Setup	₩ ₽
	- Current Test Channel	Λ.
<u>B</u> -	IT 1: Sample Compartment	
	Test Channel Configuration	٨.
8	Beamplite: KBr	Λ.
	Measurement Channel: Sample Companyers v	8.8
E.	Accessory IU: The for new configuration	Vos
	Make sure the measurement channel is prepared for the LWN Measure	+-
00- 2-	calibration before you start the measurement LWN Add new configuration	
	Instrument Configuration: Sample Compartment RT-DLaTGS	
8.	Crystal:	
	Measurement Experiment: V Dear Accessory in Dench	
8-	Reset the accessory and remeasure the LWN	
8		
8-	Save and Bit Cancel Help	
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8		
6	(
в		An instrument test is required or one of the instrument components does not meet
ő		its specifications. For details click on "Diagnosis".
8		Diagnoala:
4000 3800 3700 3800 3800 3400	3100 3200 3100 3000 2900 2900 2700 2600 2600 2400 2900 2200 2100 2000 1900 1800 1700 1600 1600 1400 1900	10152 Humidity out of range 400
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Display - HYPERION3000.ows		Diagnosis Close Help
Setup the OVP Test Channels No Active Task		CAP NUM SCRL
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→完成後顯示畫面如下→OK→Save and Exit

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d Disolay - HYPERION3000.ows:1 E Html V	tw HITERIOH3000.ows2	
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IE 連線出錯 (狀況三)

電腦網路的連接訊息→開啟 IE 無法連線至 Http://10.10.0.1

解決方式

變更 IP address: 10.10.0.10 (將 10 更改 1, 20, 40, 100...)

直至 IE 可以連線到正確畫面



操作軟體

OPUS8.1 開啟 Advanced Data Collection→ Advance

\rightarrow Load: default.xpm

OPUS - Operator: Admin (Administrator) - (Di	isplay - HYPERION3000.ows]						– a ×
O File Edit View Window Measure	Manipulate Evaluate Display Print Macro Va	idation Setup Help					- a x
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OPUS Browser 4						(2961	.893, 1.3358)
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	-	Experiment: Load Save	default xpm	A Name	^	Date modified Type ^	estore inchar
	8	File name: <@snm>	Ato	Quick access	1 15 VDA4	19/12/2018 15:57 XPM F	
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	8-	Sample scan time: 32 Scans	Measurement time > 15 seconds	Desktop HYPERION 3	000-FPA_TRANS.xpm 2 000-FPA-ATR_ATR.xpm 2	20/12/2018 16:20 XPM F	
		Background scan time. 32 Scans	~	HYPERION 3	000-FPA-REARSIDE_REFL.xpm 2 000-FPA-REARSIDE_TRANS.xpm 2	20/12/2018 17:14 XPM F 20/12/2018 17:14 XPM F	
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				HYPERION 3	000-MCT_TRANS.xpm 2	20/12/2018 16:19 XPM F	
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	d Display - HYPERION 3000.ows						Þ ×
For Help, piecc F1	No Art	we Tatk					
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Optic setting→ Check signal

Optic 偵測器/光圈/掃描速度之參數設定

Detector	RT-DTGS	Ln-MCT
	(pos.1)	(pos.2)
Aperture	6 mm	1 mm
Scan	10 kHz	20 kHz
velocity		

以偵測器 RT-DLaTGS 為例 光源可以選擇: MIR 或 Backward Input (External 外接式水冷光源) Optic 參數設定 偵測器:RT-DLaTG 光圈: 6 mm 掃描速度: 10 kHz Check signal: Amp.≧ 25000, Position:~7000

Measurement		: 	[
measurement		^	Measurement		×
Basic 🚹 Advanced Optic	Acquisition FT Display Background Check Signal		Basic 🚹 Advanced Optic	Acquisition FT Display Background Check Signal	
External synchronisation:	Off ~		External synchronisation:	Off ~	
Source setting:	MIR ~		Source setting:	MIR ~	
Beamsplitter:	KBr ~		Beamsplitter:	KBr 🗸	
Optical Filter setting:	Open 🗸		Optical Filter setting:	Open ~	
Aperture setting:	6 mm ~		Aperture setting:	6 mm ~	
Accessory:	Any ~	Current: TRANS *10AD5C443000000	Accessory:	Any 🗸	Current: TRANS *10AD5C443000000
Measurement channel:	Sample Compartment ~		Measurement channel:	Sample Compartment ~	
Background meas. channel:	Sample Compartment ~		Background meas, channel:	Sample Compartment ~	
Detector setting:	RT-DLaTGS [Internal Pos.1]	~	Detector setting:	RT-DLaTGS [Internal Pos.1]	~
Scanner velocity:	LN-MCT-D316-025 [Microscope]		Scanner velocity;	10 kHz ~	
	RT-DLa IGS (Internal Pos. I)				
Sample signal gain:	x1 ~	Sample preamp. gain: Ref ~	Sample signal gain:	x1 ~	Sample preamp, gain: Ref ~
Background signal gain:	x1 ~	Background preamp. gain: Ref ~	Background signal gain:	x1 ~	Background preamp, gain: Ref V
	[]				
Delay after device change:	0	sec	Delay after device change:	0	sec
Delay before measurement:	0	sec	Delay before measurement:	0	sec
Optical bench ready:	OFF ~		Optical bench ready:	OFF ~	
Windows meas. channel:	KBr KBr		Windows meas. channel:	KBr KBr	
1 1451					
Accept & Ext	Cancel	Нер	Accept & Exit	Cancel	Help
Baric M Advanced Optic	Acquation FT Depley Background Check Sprag	0049 9.906, -0.7885) 	Basic T Atranced Optic	Acquiston FT Deplay Beckground Orteck Signal Amplitude: 26150 Position: 7/ (44.74) 4500 4000 3000 2000 2500 2000	1049 2.422 0.2373) 1000 1000 500
ADC Court			ADC Count		

進行 FPA scans 之前須確認是否已手動開啟 FPA 偵測器(重要!) →沒有開啟 FPA 偵測器則會導致軟體故障,須回到 PAGE1:複製備

份的 Hypersion3000.ows 檔案,並覆蓋原始檔案

進行 FPA scans



Page generated on Wed, 26 Dec 2018 14:09:02

回到 Advanced Data Collection → Advance → Load

→Hypersion 3000-FPA_REFL.xpm

O COUS- Operator Admin (Administrator) - [Display - HYPERON8000 over]	- n -
	- * *
PR K Remover 8 Bit Rest Remover 9 Bit Rest Remover 9 Bit Rest Remover 10 Bit Remover	× REFL.xpm
S Cample Cingle Dervel Cample Dervel	
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Fet Help, press F1 I/O 4.0xer but # P 💷 🔗 🔂 🚱 🔕	CAP NUM SCRL — ^ ♥ ╦ 00 ENG 1647 ↓ 25/12/2018 ↓

Optic 頁進行掃描參數設定與確認	刃 心
掃描參數設定→Accept & Exit	
(切記 1.勿更改 * .xpm 之檔名	2. 勿 Check signal)

Messurement X Reset Advanced Optic Acquistion FT Display Backgound Check Signal Experiment: Indad Saw FNON 3000-FPA_REFLxpm Actor File mark: Indad Saw FNON 3000-FPA_REFLxpm Actor File mark: Indad Saw FNON 3000-FPA_REFLxpm Actor File in the indad Sample scan time: 64 Scans Actor Save data from: 3000 om-110: 900 cm-1 Pesult spectnam Actor 2 2 Additional data treatment Interferogram size: 3554 Points FT size: 4 K 3 Oata blocks to be asved Phase spectrum 9 3 3 Sample interferogram Backgound interferogram Backgound interferogram 3	Advanced 1.樣本命名與儲存路徑 2.光譜量測方式選擇 3.儲存的檔案類形
Accept & Exit Cancel Help Image: State of the second st	Optic 1.中紅外光 / KBr 分光鏡 2.量測 channel:Right Exit 為主機右側出光進行分析
Accept & Ext Cancel Help Image: Section code Advanced Image: Option of the Code of the Co	FT Phase resolution 設定 Advanced resolution=4 /8 FT Phase resolution= 32 / 64

Parameter	Explanation
Phase resolution	With this parameter, you can determine how precise the phase is to be determined. Note: Set the phase resolution in such a way that the number of phase interferogram points amounts at least to 250.
Phase correction mode	 The purpose of a phase correction is to correct asymmetric interferograms. This kind of correction increases the interferogram symmetry. Note: A phase correction is always necessary because the interferograms are never perfectly symmetric.¹ Select a suitable phase correction mode. + For detailed information about the available options, see the following table. + Note: In case of doubt, use the default parameter setting for the spectrometer configuration in question. The default parameter settings for the individual spectrometer configuration are stored in the supplied experiment file (.XPM). See also the user manual of the spectrometer in question.
Apodization function	 The purpose of apodizing is to compensate for spectral artefact "leakage"². The apodization function has an influence on the line width and the height of side lobes. Select a suitable option which represents a good compromise. In case of doubt, use the default parameter setting for the spectrometer configuration in question. Note: The default parameter settings for the individual spectrometer configuration are stored in the supplied experiment file (.XPM). See also the user manual of the spectrometer in question.
Zerofilling fac tor	The purpose of zerofilling is to compensate for the so called "picket-fence effect". ³ Zero filling means adding zeros to both ends of the interferogram before the Fourier transformation is perform. In doing so, zerofilling increases the number of points per wavenumber in the spectrum. Increasing the number of frequency sampling positions reduces the error caused by the picket-fence effect. As as result, the depiction improves by sharper lines (a mere cosmetic effect). Thus zerofilling the interferogram has the effect of interpolating the spectrum. Select a suitable zerofilling factor. (The available zerofilling factors are of 2 nd order within the range between 1 and 512.) Hint: In most cases, doubling the interferogram size (i.e. zerofilling factor 2) is advisable.



削足函數及其對應之儀器譜線形狀函數:(1) boxcar;(2)

Bartlet ; (3) Hamming ; (4) 3-term Blackman-Harris ; (5) N-B

weak; (6) N-B medium; (6) N-B strong 函數

OPUS8.1

開啟 Start Video Wizard → Select device(選擇設備)Microscope 下拉選擇 HYPERION 3000-FPA→Next





確認歸零時 \cdot stage position X,Y 皆為 0 \cdot 出現負值掃描時會當機

設定背景

Measure Background 背景取樣 Set background position → 確認移至背景點後 → OK →設定 FPA 偵測器參數,在右下角視窗按滑鼠右鍵 → Customize Focal Plane Array Setting

Customize FPA 參數設定 offset: 255 / Gain: 0 → OK (確認偵測器訊號上 4096 點的強度皆位於~10000 以下)

Measure Background

確認左側參數 → Measure Background →

Check correct position of polarizers ightarrow OK

背景量測中 Background measurement is running

樣品量測

1 Measure position 設定

→2 在上方影像拉取 1:1 方框

或3輸入中心點

→4 FPA-Signal 右下方按右鍵 Customize Focal Plane Array Setting

設定 Gain=0

→5 滑鼠左鍵 double click FPA 偵測器畫面

→6 確認左側 Modes/Objective/Microscope channel 參數及切換 IR → Next

設定樣品量測參數

(命名 File Name/儲存路徑 File Path/掃描次數 Scan time)
 → Measure Sample → Check correct position of polarizers → OK

樣本量測中 Sample measurement is running 量測完成 → End or Repeat

及產生光譜影像(Full Range)

光譜影像處理: \blacksquare \rightarrow \blacksquare cut:3700-900 cm⁻¹ \rightarrow \blacksquare Autobaseline by Rubberband correction \rightarrow _eft edge 3000 Integration \rightarrow setup method and region for chemical image a 🛯 🖬 🖛 e # , "tee 2. 19500 19500 1 >> Clear 19450 lipid ľ E:\ANN-AreaA-C22-X.0" 1 8 fehod Load Method 16600 x-axis [@] Help Exit Image 1 Chemi 1 🗇 Chemi 2 Select trace) 3D sphere plot Plot mode layback controls 🖬 Display - full access.ows:1 🕺 TRS Postrun-Display - full access.ows:2 🖾 Chem. Ima 💶 🖉 在选择输入文字末报导 🎎 🙇 🖽 CL 🥋 🔿 🧭 🥵 🕼 🕼 🕼 🕼 🕼 🚺 💽 🗮 📿 🔮 😭 ∧ 🖾 🏧 束 🤉 3:18 PM 💀

Chemical Imaging

7/10/2023 3:19:37 PM

單光譜擷取處理:

點選光譜→切換至 list→選擇要存取光譜→按右鍵→Extract spectra →輸入檔名及存取位置→ Extract

平均光譜擷取處理:

開啟 3D window→點選 至 XYZ plot 視窗→按右鍵→Extract
spectra→輸入檔名及存取位置→ 切換至 Extraction region 頁面→輸入
0-4095(即為 64*64=4096 點光譜)→ 切換至 Extraction mode 頁面
→選擇 Average block→ Extract

Extract Data		×
Select Files Extraction Range	Extraction Mode	
01		g
Store		6
Coadded block	Average block	k
O New 3D file	O Mapping line	-
○ First block only	◯ Last block on	у
⊖ Difference first - last	O Difference last	t - first
◯ lg(first/last)	◯ lg(last/first)	
If file already exists		
Increment name	OAbort	
Extracted files		
Do not load	◯ Load	
Extract	Cancel	Help

輸出光譜以 Origin 繪圖

