MIPAR 软件中自定义创建测量值功能(Custom Measurements)介绍

为了满足测量的数据的需要,故在 MIPARV4.3 版本中新增了自定义测量的功能。如果现有的测量选项无法满足定量需求,也可以根据自己对测量值的需要,利用现有的测量值,对测量值进行追加计算公式,文本输入。从而得到需要的测量值。

1.以案例中的 Alpha Laths in Titanium 为例



2.对其α相测定,从 Feature Measure 选择 alpha 相

🕑 Image Processor				– 🗆 ×
File Launch 💩 Help 🛛	Edit Measurements Tools			
Templates >	🛑 Open Image 🔹 🎂 Load Recipe 👻 🗎	Save Image 🖸 Save Recipe	Measure Image Measure Features 🗢 Measure	Local
		Scale	Properties Beta	Help
1	▲ ~~ \ ID	Calibrate Load Save Size: Scale Factor Tage	All popular devocation Strength s: View neighborhood.	Ity relative to some statistic of the surrounding
	Reference Image	Cu	rrent Image	Recipe
Load Reset	2 cropped ORIGINAL.png		Hide Layers v Save view Overlay V Opacity: 60	DETECTION Optimize
M				Apra dectual site sign to her
			AN MA	меляциемента

3.点击右下角"Add Custom"按钮,打开自定义创建测量值功能界面

Peature Measurements			- 🗆 ×		
S	ize	Sh	аре		
Area	Area of each feature	Roughness	Ratio of area of convex hull and area of each feature		
Area Fraction	Area fraction occupied by each feature relative to image	Eccentricity	Elongation of each feature. 0=circle, 1=straight line.		
Caliper Diameter	Largest line length that fits across each feature	Aspect Ratio	Ratio of major and minor axis lengths		
Minimum Diameter	Smallest line length between two tangential parallel lines	Roundness	Ratio of equivalent and caliper diameters		
Equivalent Diameter	Diameter of each feature if each was circle of same area	Perimeter	Length of perimeter of each feature		
Filled Area	Area of each feature with holes	Perimeter/Area	Perimeter of each feature relative to its area		
Eungth - X	Length of each feature's bounding	First Moment of Area	Describes how much feature area is away from its centroid		
Length - Y	Length of each feature's bounding	Moment Invariants	Advanced shape descriptors. Can describe trianguarlity, etc.		
Major Axis Length	Major axis length of ellipse fit to each feature	Based on	Companion		
Minor Axis Length	Minor axis length of ellipse fit to each feature		ID number of companies feature		
Intercepts 🦻	Measures stats from intercepts drawn through each feature	Companion ID	Number of fully or partially		
Loc	ation	Companion Features	contained companion features		
200		Companion Area	of companion features		
Centroid	Centroid location of each feature	Companion Perimeter	Average and total perimeter length of companion features		
Orientation	Angle of fit ellipse relative to +X	Companion Path Length	Average and total path length of companion features		
Tilt	Angle of caliper diameter relative to +X	Text	Recognized text within each feature		
Nearest Neighbor	Each feature's distance to the closest other feature	Intensity Mean	Average intensity within each feature		
Average Neighbor	Each feature's average distance to its neighbors	Intensity StdDev	Standard deviation of intensity within each feature		
Edge Feature	Boolean edge feature status	Intensity Sum	Sum intensity within each feature		
	0	Add Custom	Select All Select None		
Save to File	View Me	asurements	Add to Recipe		
P Save	¢	View	O Add Stats -		

4.点击"Create New"按钮,设置新的输出

咧 Manage Custom Mea	asurements				>				
		Custom Featu	re Measurement	Manager					
	Avaliable	Measurements		Added to Recipe					
Save/Loac Avaliable Save to File Load from File Manage Avaliable Create New Edit Delete Duplicate	Measurement Name Measurement Template x/y caliper caliper caliper caliper	Variable areaSquared length_x Count caliper caliper_diameter caliper_x	Add >> Remove	Measurement Name	Variable				
Formula: Description: Mapped:	SELECT A MEASUREMENT TO VIEW F	ORMULA ESCRIPTION		✔ Accept	× Cancel				

5.打开设置界面,左侧是输出设置的显示名,右侧的 Variable Name 输入半角字 母和数字,以便 MIPAR 内部识别。(注意: Variable Name 不要使用空格和连字符,请使用下分)

在其下面的 formula 栏中,可以输入 Area 等已有的测量值,生成新的输出公式。

如果想输出没有的值,但是我们又不知道我们要的测量值怎么输入(以面积 值 的 Variables Name 为例),可以点击右侧的 Formula Help 里面的 Variables/Operators 按钮。

M	Setup Custo	om Measurement					—		\times
		Mea	asuren	nent Setup			Sa	ve/Loa	d
	Name*:			Variable Name*:			S	ave to File	e
	Area measurem	ent		area_measurement			Lo	ad from Fi	le
	Examples: Area	Squared, Defect Status		Examples: areaSquared	, defectStatus				
	Formula*:						For	mula H	elp
		Example: feature_area^2, SQRT	(feature_a	area/3.14)*2			Varia	bles/Opera	ators
	Description:						L		
	Status:								
		Мар	Value	es (optional)					
	Rang	e Value Type	Va	alue		Add			
			-		J	Remove			
						Up			
						Down			
	Example range	ə: (-inf. 2): [2. inf) or (-inf. 0.5): [0.	5. 1): [1. ii	nf)		Clear			
		- (, _, [=,, (,,, [
	?	✓ Accep	ot	× Cancel					

6.可以看到现有值对应的 Variable Name。现在要测量每个粒子的面积值,将 "feature_area"进行复制。

Operator	Suptov	Magguran	Variable	Custom Moscursment	Variable
Operator	Syntax	Absolute Correlation Cooffi		Custom Measurement	variable
Subtract	-	Area	facture grad	Measurement Template	areaSquared
Divide	-	Area		adiper	Count
Multiply	*	Area Fraction	feature area fraction	caliper	caliner
Open Parentheses		Area Fraction	image area fraction	caliper	caliper diameter
Close Parentheses		Aspect Ratio	feature aspect ratio	caliper	caliper x
Power	<u>^</u>	Average Neighbor	feature an distance	x/y	length x
Square Root	SQRT(Caliper Diameter	feature_cal_diameter	-	_ <u> </u>
Natural Log	LOG(Centroid-X	feature_centroid_x		
Or	1	Centroid-Y	feature_centroid_y		
And	&&	Companion Area Fraction	feature_comp_area_fraction		
Equal To	==	Companion Average Area	feature_comp_area_average		
Not Equal To	~=	Companion Average Path L.	feature_comp_path_length		
Greater Than or Equal To	>=	Companion Average Perim	feature_comp_perimeter_a		
Less Than or Equal To	<=	Companion Features	feature_comp_features		
Greater Than	>	Companion ID	feature comp id		

7.直接在 Formula 一栏中粘贴"feature_area"。

Setup Custom Measurement		- 🗆 X
Measure	ement Setup	Save/Load
Name*:	Variable Name*:	Save to File
Area measurement OK	area_measurement	Load from File
Examples: Area Squared, Defect Status	Examples: areaSquared, defectStatus	
Formula*: feature_area		Formula Help
Example: feature_area^2, SQRT(feature	e_area/3.14)*2	Variables/Operators
Description:		
Status:		
Map Valu	ues (optional)	
Range Value Type	Value Add	
0 [] double 0	Remove	
	Up	
	Down	
	Clear	
Example range: (-inf, 2); [2, inf) or (-inf, 0.5); [0.5, 1); [1	I, inf)	

8.在 Map Value (optional) 中输入指定的范围。例如: 输入(-inf,2000], -inf 代 表负数的无限大, 2000 代表 2000 像素。

M	Setup Custo	om Measurement						-		\times
Measurement Setup								Sa	ve/Load	ł
	Name*:				Variable Name*:			S	ave to File	
	Area measurem	ient			area_measurement				ad from Fil	
	Examples: Area	Squared, Defect Statu	s		Examples: areaSquar	red, defectStatus		20		
	Formula*:	feature_area						For	mula He	elp
		Example: feature_area	^2, SQRT(feat	ure_ar	rea/3.14)*2			Varia	bles/Opera	tors
	Description:									
	Status:									
			Map Va	lues	(optional)					
1										
		Range Valu	e Type		Value		Add			
	1 (-inf,2	2000] doubl	e 0				Remove			
							Up			
							Down			
							Clear			
	Example range	e: (-inf, 2); [2, inf) or (-in	f, 0.5); [0.5, 1);	; [1, inf						
	?		🖌 Accept		× Cancel					

9.直接点击其他黑色区域,第二个会自动填写相反的数值。inf 是正数的无限大。 注意:()代表不包含,[]代表包含。

	Map Values (optional)								
		Range	Value Type	Value	Add				
	1	(-inf,2000]	double	0					
	2	(2000,inf)	double	0	Remove				
					Up				
					Down				
	-				Clear				
10	=xam	iple range: (-inf, 2)); [2, inf) or (-inf, i	0.5); [0.5, 1); [1, INT)					

10.Value Type 有三个值 (Double, Text, Bool), 低于 2000 输入 Fail, 高于 2000 输入 Pass。**输入完毕后,点击 Accept 进入上一个目录界面。**

	Map Values (optional)							
		Range	Value Type	Value	Add			
	1	(-inf,2000]	text	Fail				
	2	(2000,inf)	text	Pass	Remove			
					Up			
					Down			
					Clear			
11	Exam	ple range: (-inf, 2); [2, inf)	or (-inf, 0.5); [0.5, 1); [1, in	nf)				
	?		✓ Accept	× Cancel				

11.回到上一层界面,查看 Avaliable Measurements 中是否有前面创建的输出设置,选择该项目,点击 Add 按钮。

Custom Feature Measurement Manager Added to Recipe Save/Load Available Measurement Template transquared caliper caliper, calip	🕲 Manage Custom Measurements				_	
Available Measurements Added to Recipe Save/Load Measurement Template areaSquared Available Measurement Template areaSquared Save to File caliper couliper Caliper caliper caliper_a Caliper caliper_a aliper_a Available Measurement area_measurement Create New Edit area_measurement Edit Delete culper Duplcate culper_a Descriptor Xdatable		Custom Feature Me	asurement Mana	ger		
Save/Load Available Save to File Load from File Available Measurement Template areaSquared xy caliper	Avaliable	Measurements		Added	to Recipe	
Formula: feature_area Description: Mannet YES	Save/Load Avaliable Save to File Load from File Avaliable Measurement Template x/y callper callper callper callper callper callper Create New Edit Delete Duplicate	Variable areaSquared length_x Count caliper_ caliper_diameter caliper_x area_measurement	Add >> Remove	Measurement Name	Variable	
1000000	Formula: feature_area Description: Mapped: Yes			✓ Accept	× Cancel	?

12.添加到 Add to Recipe 之后,点击 Accept 按钮。

Manage Custom Measure	ments				-	
		Custom Featur	e Measurement Man	nager		
	Avaliable	Measurements		Added	to Recipe	
Save/Load	Measurement Name	Variable		Measurement Name	Variable	
Avaliable	Measurement Template	areaSquared		Area Measurement	area measurement	
Cause In File		length_x				
Save to File	caliper	Count	Add >>			
Load from File	caliper	caliper				
	caliper	caliper_diameter	Remove			
Manage	Area Measurement	area measurement				
Avaliable	Area weasurement	area_measurement				
			<< Import			
Create New						
Edit						
Delete						
Duplicate						
Formula: featu	re_area			of Assent	Y Canaol	
Description:				V Accept		
Mapped: Yes						?

13.回到下面的界面,点击右下角 Add 按钮,在 recipe 中添加测定项目。



14.添加到 recipe 栏中后,点击绿色执行按钮



15.用 Fail/Pass 显示测量值



16.<添加自定义测量>

因为仅仅凭借 Pass/Fail 无法得知实际的测量值,所以再添加测量值。选择要测量的选项,单机 Edit 按钮。



17.在打开的界面选择"Edit Custom"



18. 设定一个合适的 Name 和 Variable Name 的值,在 Formula 栏中输入 feature_area。因为没有指定的范围,所以不需要设定 Map Values。

M	Setup Custo	om Measurement					_		\times
		Meas	urem	nent Setup			Sa	ve/Load	ł
	Name*:			Variable Name*:			s	ave to File	
	Area Value		ок	area_value			Lo	ad from File	
	Examples: Area	Squared, Defect Status		Examples: areaSquar	ed, defectStatus				
	Formula*:	feature_area					For	mula He	lp
		Example: feature_area^2, SQRT(f	eature_a	area/3.14)*2			Varia	oles/Operat	ors
	Description:								
	Status:								
<i>a</i> =		Map	/alue	s (optional)					
	Rang	e Value Type	Va	lue		Add			
					-	Remove			
						Up			
						Down			
						Clear			
	Example range	e: (-inf, 2); [2, inf) or (-inf, 0.5); [0.5,	1); [1, ir	nf)					
	?	✔ Accept		× Cancel					

19.选择要添加的项目,添加到 Add to Recipe 中。

Mana	ge Custom Measu	irements						
			Custom Featu	re Mea	surement Man	ager		
		Avaliable	Measurements		Added to Recipe			
	Save/Load	Measurement Name	Measurement Name Variable			Measurement Name	Variable	
	Avaliable	Measurement Template	areaSquared			Area measurement	area_measurement	
		x/y	length_x		× .	Area Value	area_value	
	Save to File	caliper	Count		Add >>			
	Load from File	caliper	caliper					
		caliper	caliper_diameter		Remove			
	Manage	caliper	caliper_x					
	Avaliable	Area measurement	area_measurement	-				
		Area Value	area value		<< Import			
	Create New							
	Edit							
	Edit							
	Delete							
	Duplicate							
	Formula: fe	eature_area						
	Description:					✓ Accept	× Cancel	
	Manage N	la la						
	Mapped: N							?

20.回到前面的界面,点击"Update"按钮进行更新。

	ļ	eature				
	ean f	Average intensity v feature	vithin each			
	dDev v	Standard deviation within each feature	of intensity			
	im	Sum intensity withi	n each feature			
	🖌 Edit Custom	Select All	Select None			
nts	U	pdate in Reci	ре			
		Update 🕐	Stats 👻			

21.Pass/Fail 栏的旁边会显示面积值。



22.要从视觉上面确认 Pass/Fail 的情况时,用 Bool 表示很方便。再次追加测定项目,创建如下图所示的 bool Value 的新项目。

🞯 Setup Custo	om Measuremen	t					—		\times
Measurement Setup							S	ave/Load	ł
Name*:				Variable Name*:			T.	Save to File	
Area Bool	Area Bool			area_bool				oad from File	
Examples: Area Squared, Defect Status			Examples: areaSquared,	defectStatus				-	
Formula*:	feature_area						Fo	ormula He	elp
	Example: feature_are	area^2, SQRT(feature_area/3.14)*2					Var	iables/Opera	tors
Description:									
Status:									
		Map	/alue	s (optional)					
				- (
			_		-	OK			
Rang	e Value Type	_	Va	lue		Add			
2 (2000.	bool 0					Remove			
						Up			
						Down			
						Clear			
Example range	e: (-inf, 2); [2, inf) or (-	inf, 0.5); [0.5	1); [1, ir	nf)					
?		Y Accept		× Cancel					

🕑 Manage Custom Measure	ments				—				
	Custom Feature Measurement Manager								
	Avaliable	Measurements		Added to Recipe					
Save/Load Avaliable Save to File Load from File Manage Avaliable Create New Edit Edit Delete Duplicate	Measurement Name Measurement Template x/y caliper caliper caliper Area measurement Area Value Area Bool	Variable areaSquared length_X Count caliper_ caliper_diameter caliper_x area_measurement area_value area_bool	Add >> Remove << Import	Measurement Name Area measurement Area Value Area Bool	Variable area_measurement area_value area_bool				
Formula: featu Description: Mapped: Yes	ure_area			✔ Accept	× Cancel	?			

23.新的 Pass/Fail 的状况可以用颜色表示。 © Color by Measurements Zeon - Scotel Fame - Class Scotel for SHIT) - Day Preview - SHIT HLP: Colors the separate features in the Current Image according to a set of feature measurements 2



这是简单的小案例,除此之外,还可以在多个范围内进行测量。在 Formula 栏中自由输入公式。