Tutorial of Vector Method Analysis Program(Cubic)

We execute "Crystal Orientation Distribution Analysis by Vector Method" program by using a sample data of pole figure.

1. Program execution

When we double click ".. Wector exe Vector.exe", it is wake-upped, and its main view is shown. (Fig.1)



Fig. 1 Main View

1 By click "Analysis" of Main Menu, "Analysis Parameter" dialog (Fig. 2) is shown.

2. "Analysis Parameter" dialog

	Analysis Parameter	x
A	 Sigma Matrix : Pole hkls = 001, COD Blocks = 36 Sigma Matrix read 	
В —→ {	Pole File 1: D¥Vector出荷(V2.0.0)¥pole_data¥43sx1_a2b5plc Pole File 2: Pole File 3: Pole File 4:	
	Start Stop Step Pole Alpha: 90.00 0.00 2.00 Beta: 0.00 355.00 <u>5.00</u> 6	
	Pole File 1 2 3 4 : Read Display Calculated Condition Analysis 7 1 Analysis 7 1 Analysis 7 1 1 1 1 2 3 4 7 1 	Close

Fig. 2 Analysis Parameter Dialog

① By "Sigma Matrix read..." button click, "Sigma Matrix" dialog (Fig.3) is shown.

Sigma Matrix	×			
a: 2.4000 Alpha: 90.0 b: 2.4000 Beta: 90.0	Alpha step : 2.0 (deg.) Beta step : 5.0 (deg.) Zeta step : 10.0 (deg.)			
Pole hkl for Make Matrix				
and Element Pole : 0 0 1 💌 Pole hkl list : Update	3			
User Identifier : test				
Pole hkl for Read Matrix :	<u> </u>			
	Close	5		

Fig. 3 Sigma Matrix Dialog

- 2 As sample data is 001 pole figure, select 001 from "Pole hkl for Read Matrix".
- ③ Select 36 from "COD Blocks". (COD: Crystal Orientation Distribution)
- ④ By "Read Matrix" button click, sigma matrix is read. The read sigma matrix information is shown at A of Fig. 2.
- (5) By "Close" button click, this dialog is closed.
- (6) Return to Fig. 2, and confirm that Pole File is selected 1, and click "Pole file read" button. Select "43sx1_a2b5.plc" file of "..¥Vector¥pole_data" folder. The content of the pole figure is shown at B of Fig. 2.
- ⑦ When you click "Analysis..." button of Fig. 2, "Analysis" dialog (Fig. 4) is shown.



Fig. 4 Analysis

(8) When you click "Calculate" button, Calculation of Vector Method Analysis is started. Calculated process is displayed at C of Fig. 4. Ordinarily, Calculation time is about 5 ~ 6 seconds. After calculation, "Calculation is done" message is shown at D of Fig. 4.
(9) When you click "Display..." button, "Display Parameter" dialog (Fig. 5) is shown.

	Display Parameter
	C Simulation Pole Figure # Input, Calculate # O Input Pole Figure Pole Figure # O Calculate Pole Figure 1 2 3 4 # O Input & Calculate Pole Figure 1 2 3 4
	* C Recalculate Pole Figure * C Calculate & Recalculate Pole Figure 0 0 1 hkl
	 C Crystal Orientation C Reciprocal Pole ND TD RD Angle from TD : 0 - deg.
	Contour Draw : Paint Line
	Level Min : 0.181 Level Max : 4.190 Display Min : 0.100
	Equal Interval Equal Width Designate Level
	Divide Points : 10 Draw Level
	1 2.000 2 4.000 3 6.000 4 8.000 5 10.000
11	Add Change Delete
Ψ.	Parameters are decided.

Fig. 5 Display Parameter

10 Select "Input & Calculate Pole Figure" radio button.

 When you click "Decide & Display..." button, dialogs ("Input Pole figure" and "Calculated Pole figure") (Fig. 6) are shown.



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⁽¹⁾ When you click "Airscape..." button, the airscape of "Input Pole figure" is shown.



Fig. 7 Input Airscape After the observation of displays, each dialog is closed by "Close" button click.

You select "Crystal Orientation" radio button at Fig. 5, and click "Decide & Display..."
 of ①, Crystal Orientation Display (Fig. 8) is shown.

After the observation of display, this dialog is closed by "Close" button click.



Fig. 8 Crystal Orientation Display

You select "Reciprocal Pole" radio button at Fig. 5, and click "Decide & Display..." of ①, "Reciplocal Pole Display " dialog (Fig. 9) is shown.



Fig. 9 Reciprocal Pole Display

Ib When you click a block of Reciprocal Pole (Fig. 9) by right mouse button,
"Zeta Graph" dialog (Fig. 10)is shown. Fig. 10 is ζ distribution of clicked block.

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Fig. 10 Zeta Graph

After the observation of displays, each dialog is closed by "Close" button click.