

Technical note T143: Understanding SAG and radial fitting options

PGI Dimension – TalyMap

Understanding and using SAG and radial analysis options

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Introduction

When opening the **Operators 3D Astigmatism** box in TalyMap there are several different sections. This technical note focuses on the **Conic analysis setting** box and the difference between SAG and radial analysis.

Procedure

1 To open the **Operators 3D Astigmatism** box, left mouse click on any of the gears in the **'Bank of studiables'** on the right-hand side in TalyMap (Figure 1).

If the **'Bank of studiables'** is not displayed then click **'View' → 'Analysis workflow'** (Figure 2).

Once clicked, the **Operators 3D Astigmatism** box will be displayed (Figure 3).

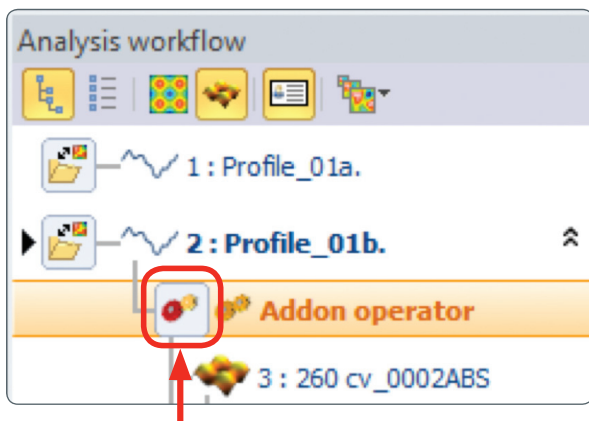


Figure 1 – Opening the PGI Blu Astigmatism Setting box

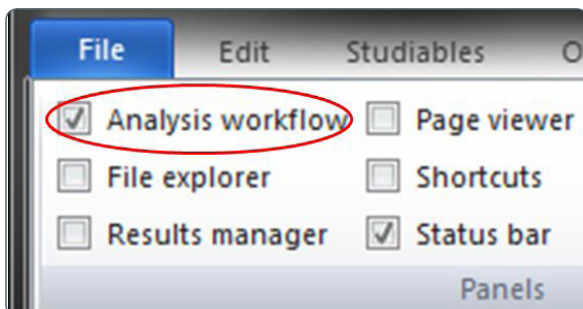


Figure 2 – Analysis workflow

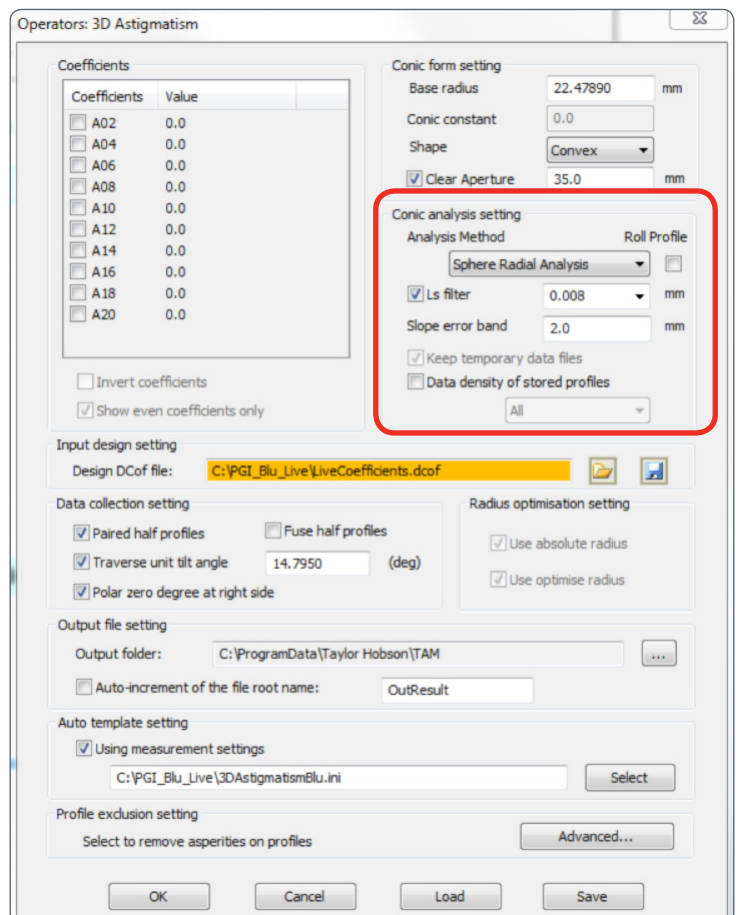


Figure 3 – Analysis settings

Procedure continued

- Under Conic analysis setting > Analysis method, note the different options available (Figure 4).
- When selecting the analysis method there are 4 options to choose from. The user can select SAG analysis or Radial analysis for either a sphere or asphere.

Options available

- SAG and Radial analysis options** – The SAG fitting (Figure 5) uses a Cartesian coordinate system and the radial analysis (Figure 6) uses a polar coordinate system. TalyMap will then analyse the data using the chosen analysis method.
- Large error option** – If a SAG aspheric analysis is selected there is an option to select 'Large Error' (Figure 7). Large Error is for aspheric profiles that have a large form deviation error. This affects axial stability of fitting, therefore it uses the symmetrical method used in Aspheric Data Fusion to find the axis.
- Roll profile option** – If Aspheric Radial Analysis or Sphere Radial Analysis is selected there is an option to select 'Roll Profile' (Figure 8).

Roll profile is when the profile is taken and stretched out causing the X distance to increase (Figure 9). Imagine holding a piece of string with both hands, when it is pulled tight, it lies straight.

When 'Roll Profile' is not ticked the X axis is displayed as a horizontal distance. When 'Roll Profile' is ticked, then the X axis is displayed as an arc distance along the profile to the axis (Figure 9). Note the difference in the length.

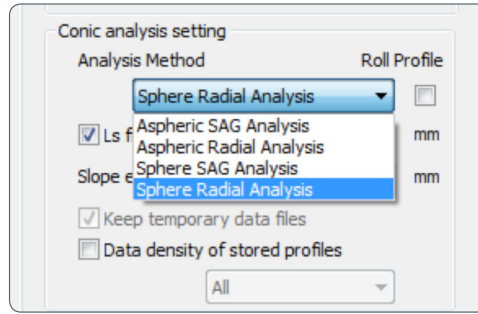


Figure 4 – The different fitting methods

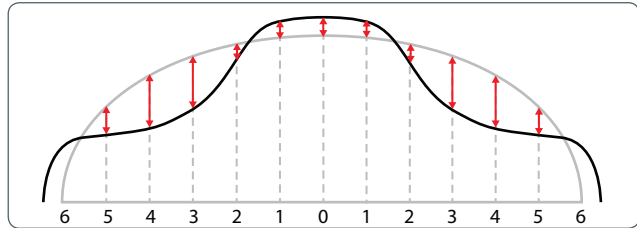


Figure 5 – SAG Fitting

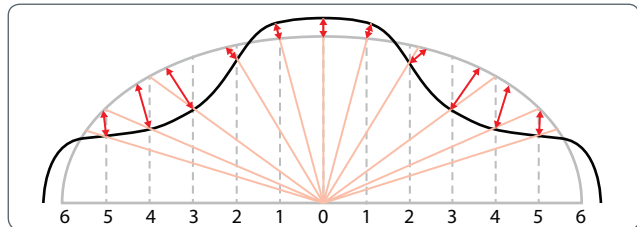


Figure 6 – Radial Fitting

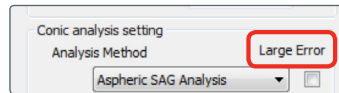


Figure 7 – Large Error

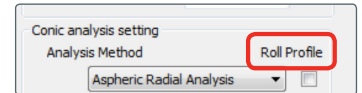
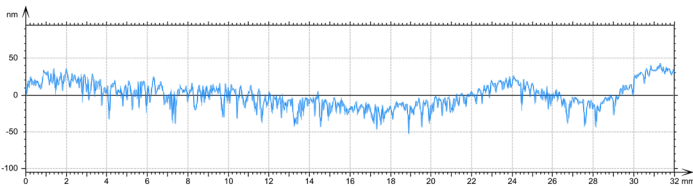


Figure 8 – Roll Profile

Parameters	Value	Unit
Length	32.000000	mm

Roll profile not ticked



Parameters	Value	Unit
Length	35.572250	mm

Roll profile ticked

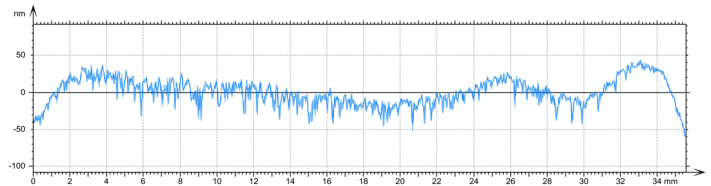


Figure 9 – Roll profile



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