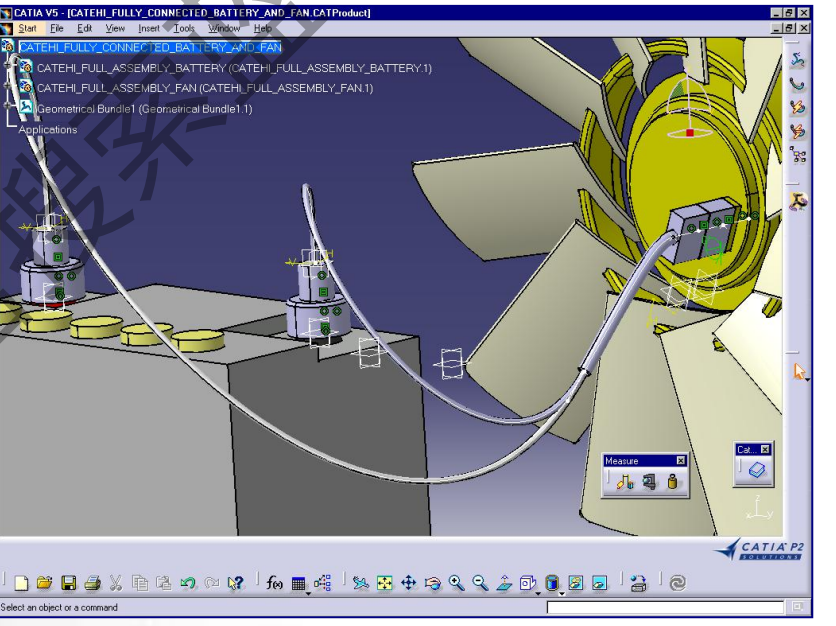
Electrical Harness Installation
电气安装

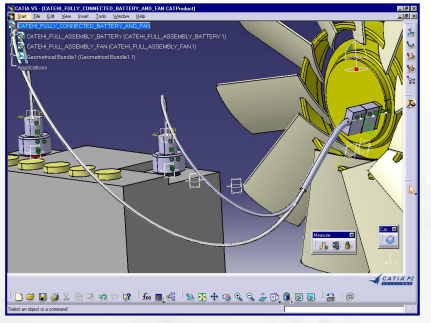


Electrical Harness Assembly电气装配

Getting Started Samples简例

DASSAULT SYSTEMES

CATIA Training
Foils



Electrical Harness Installation电气安装

Electrical Harness Assembly电气装配

Version 5 Release 13
2004

Course Presentation

Objectives of the course

In this course you will learn how to build a harness integrated within the DMU and how to connect the bundle segments to your electrical components.

下面的讲义介绍如何在电子装配中建立电气用具和如何使用线束连接它们

Targeted audience

New Electrical V5 users

适用对象是CATIA V5初级学者

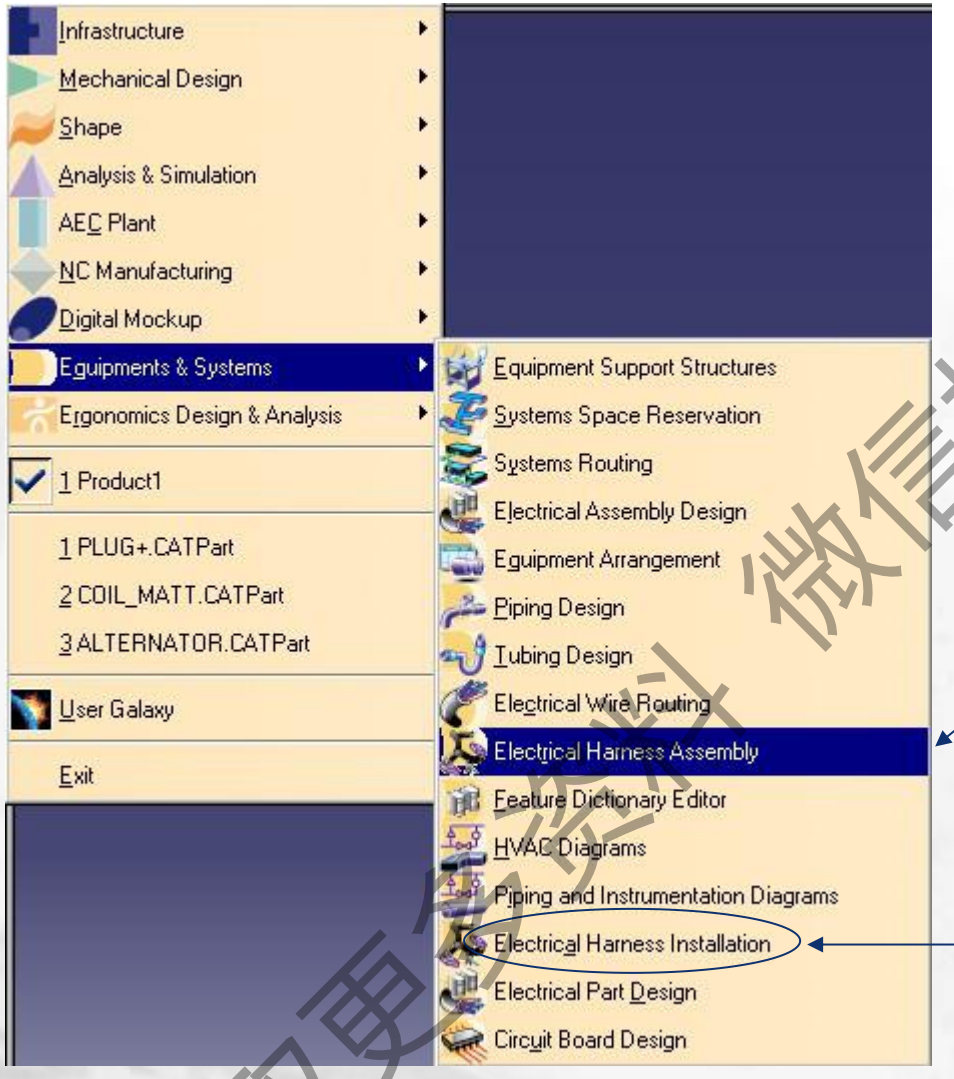
0.5 day

Prerequisites

Catalog Editor, CATIA V5 basics

Table of Contents内容提要

Accessing the workbenches进入电气安装界面



Allows the geometrical harnesses creation. It links bundle segments together to create this harness.产生线束定义，线束连接

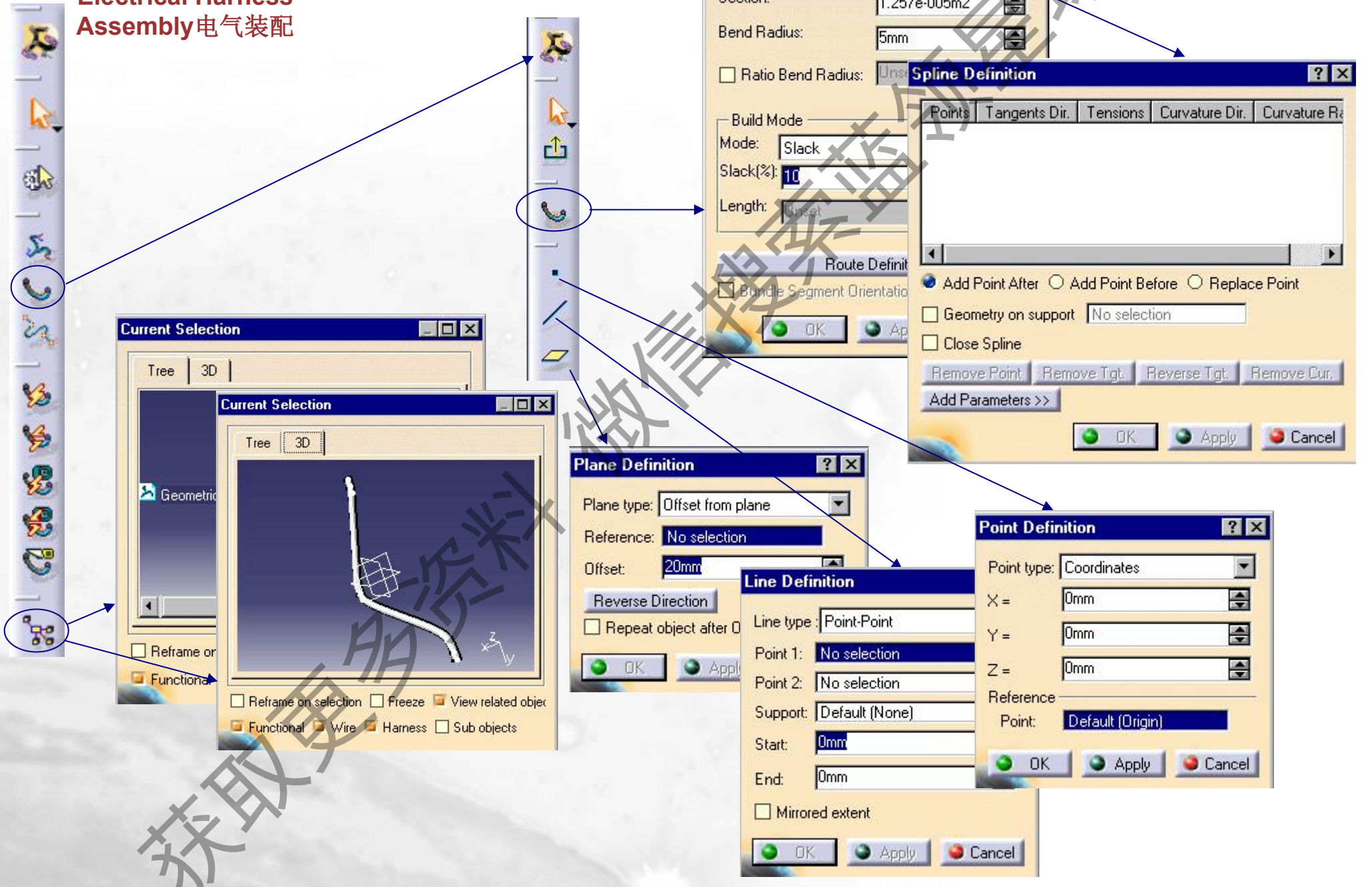
Allows the bundle segments creation within a geometrical bundle线束的几何定义

User Interface用户界面

Electrical Harness Assembly电气装配

Electrical Harness Installation电气安装

线束几何定义



Terminology术语

Geometric Bundle线束组

Electrical object federating a bundle segments group.
A geometrical bundle is mandatory in order to create a bundle segment.

Bundle Segment线束

Also called segment, a geometrical subdivision of a geometrical bundle.
It is the branch of harness graphical representation in the digital mock-up.

Support电器库元件支承件

An Electrical catalog item that is utilized when routing geometrical bundles.
It controls the entry and exit of the bundle segment as it is routed through the DMU.

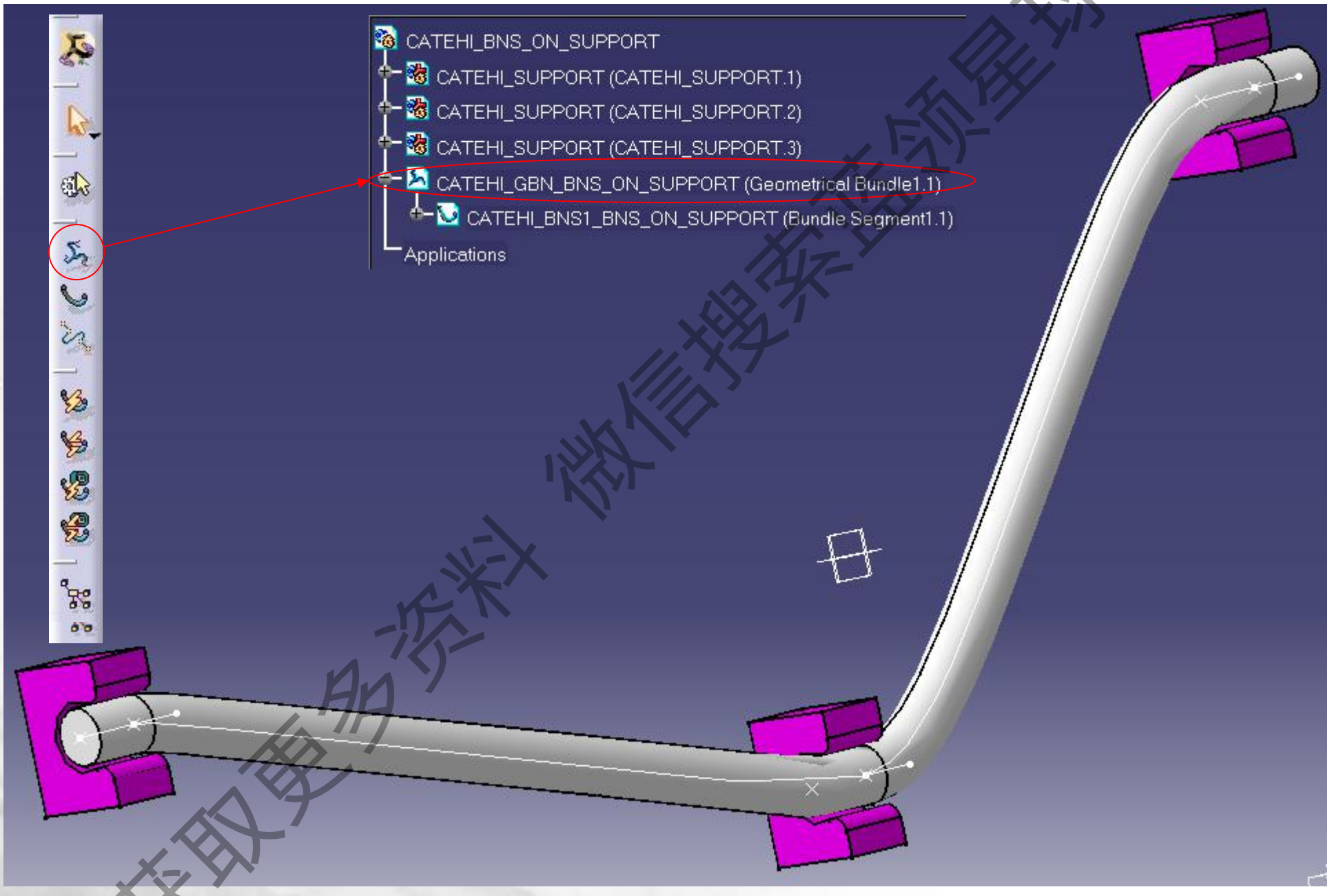
Floating Junction线束连接点

A junction that automatically finds a natural position.

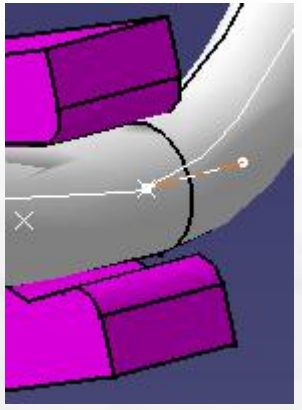
Alternative Bundle Segment Section线束截面

The sections of a bundle segment need not be circular, they can follow the profile of another sketch.

Define a geometric bundle定义线束组



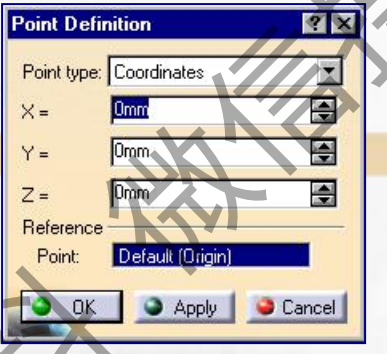
Define a point生成点



1

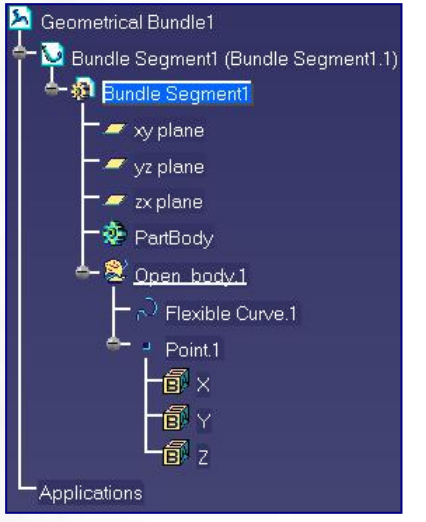
Select the “Bundle Segment” function

选择图标



2

Select the point function and give the coordinates



生成点的图标

The new point is added to the BNS

Define a Line生成线

1

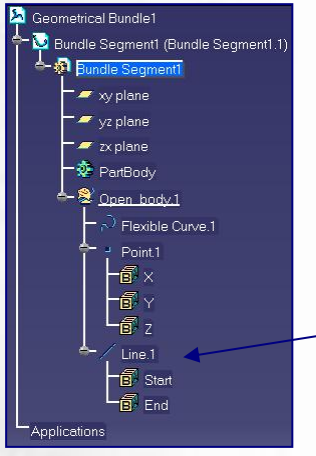
Select the “Bundle Segment” function

选择图标

2

Select the line function give it the coordinates

生成线的图标



The new line is added to the BNS

Define a plane生成平面

1

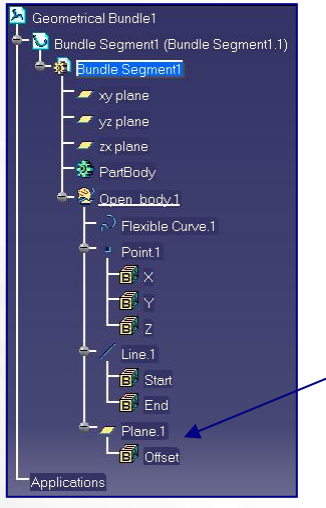
Select the “Bundle Segment” function

选择图标

2

Select the “Plane” function and define its coordinates

生成平面的图标



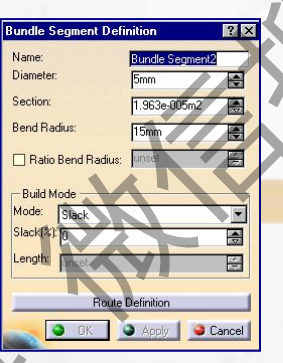
The plane is added to the bundle segment

Define a bundle segment定义单个线束

1

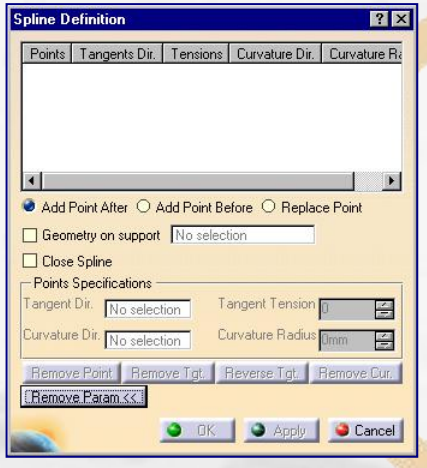
Select the “Bundle Segment” function

选择图标

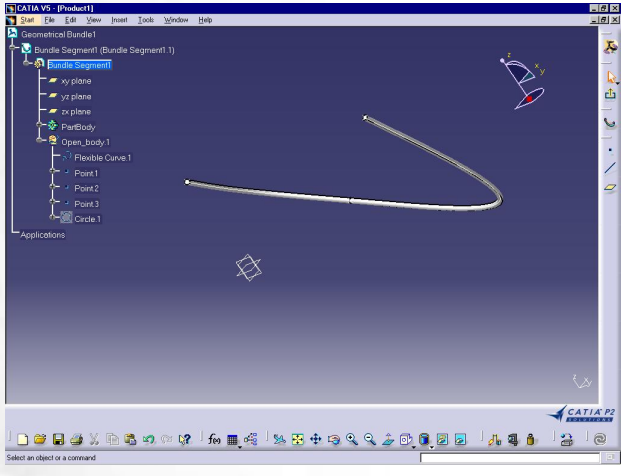


2

Select the “Bundle Segment Definition” function and define it

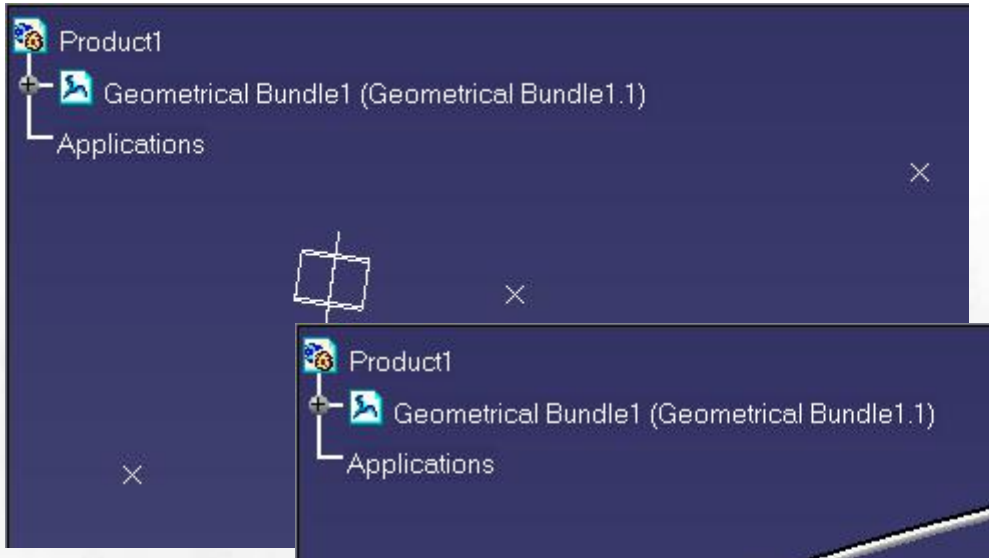


生成线束的图标

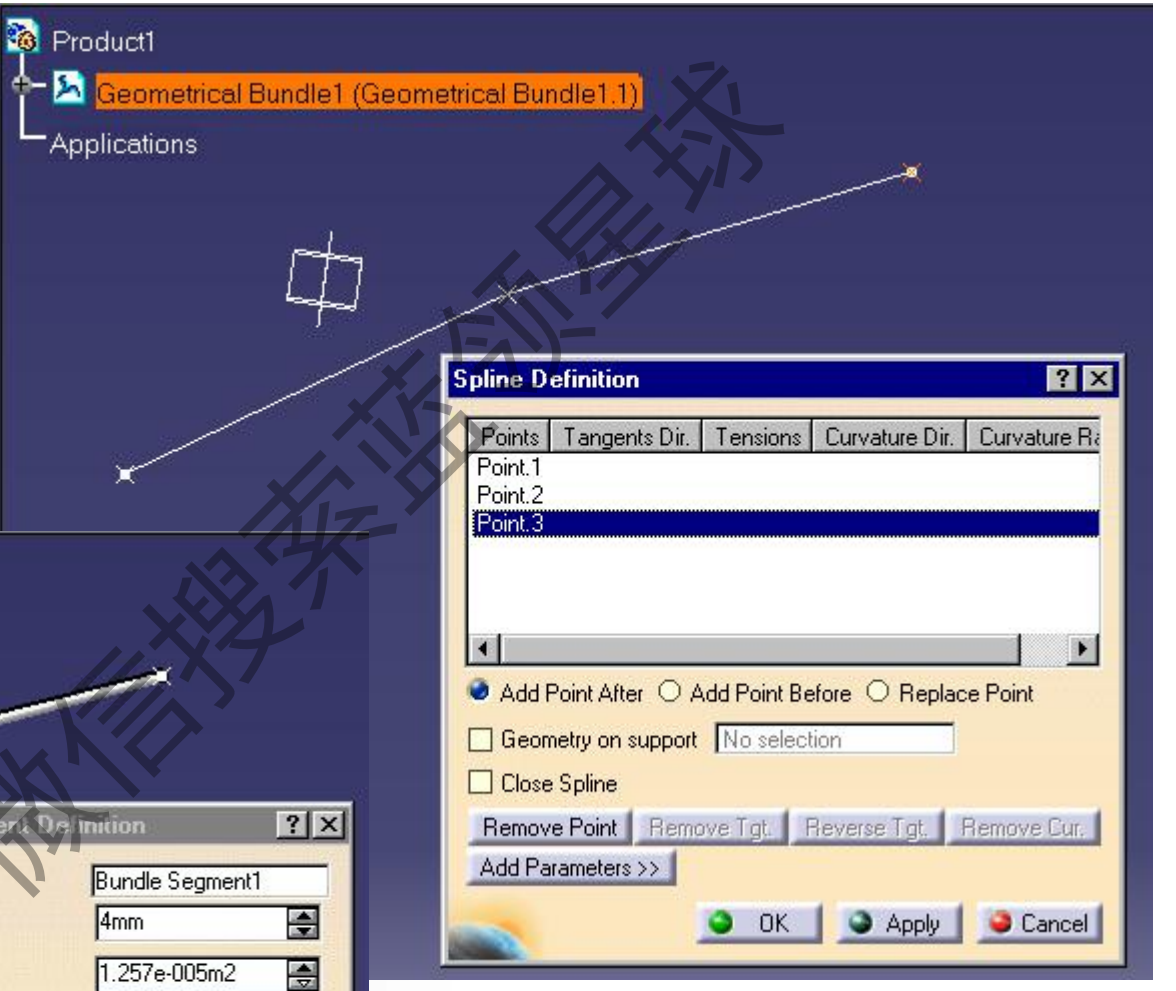


The BNS is updated

Define a bundle segment
定义线束段

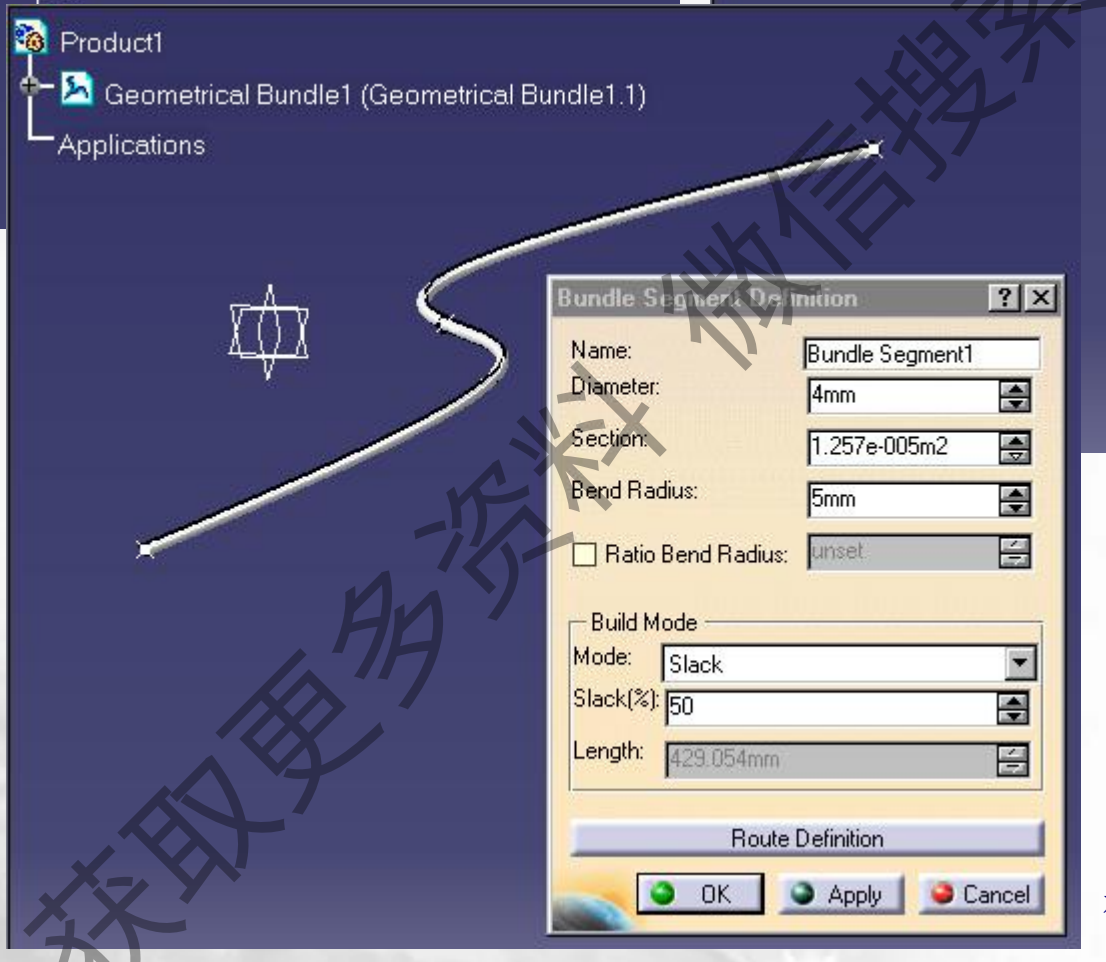


1



线束控制点
生成样条线

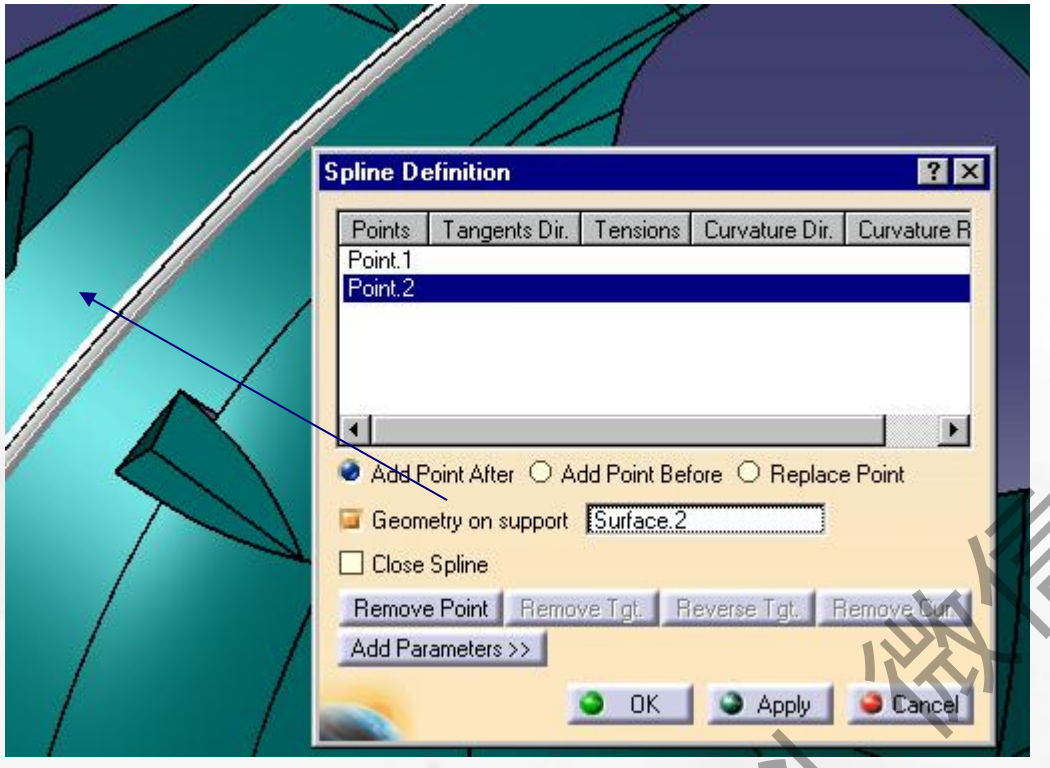
2

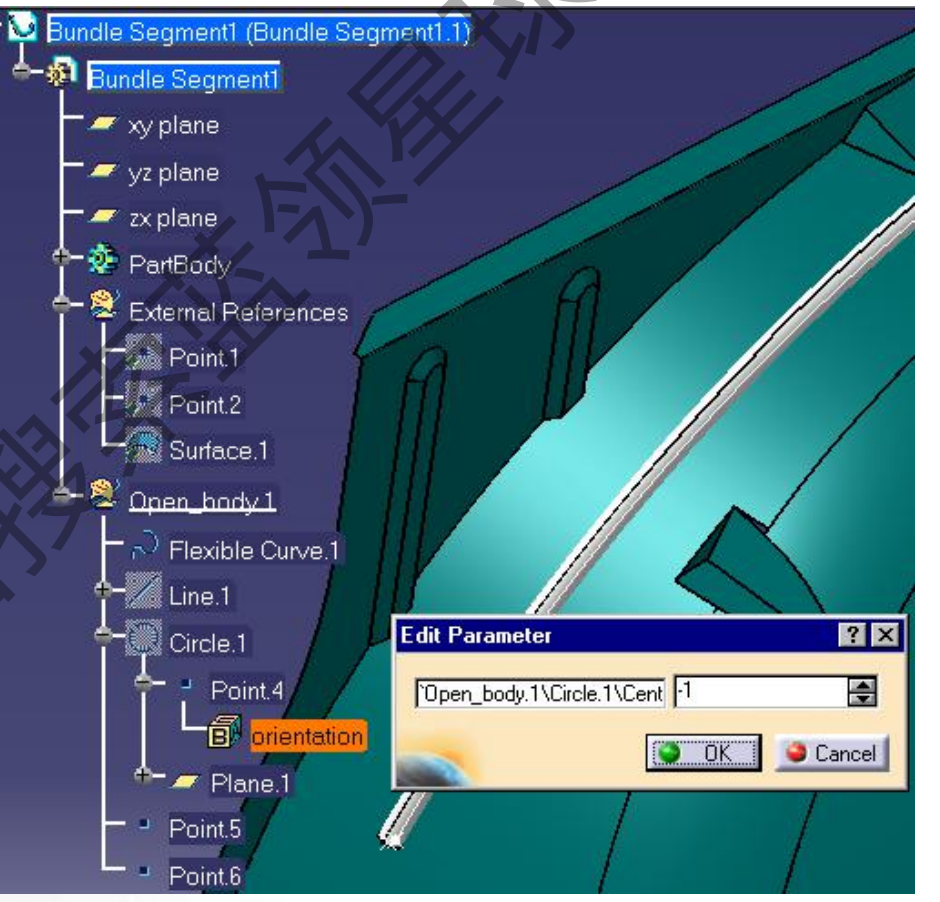


3

截面和松弛度设置

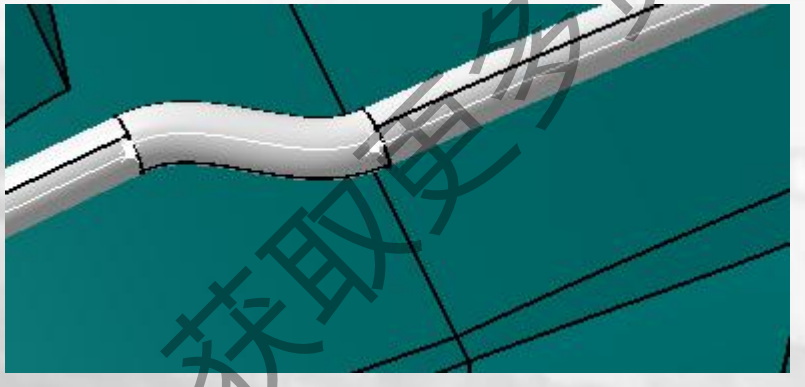
Define a bundle segment : following a surface (1/2)线束附着面





1 **Select the points the BNS has to go through and the surface.**

选曲面
线束两端点
在此曲面上



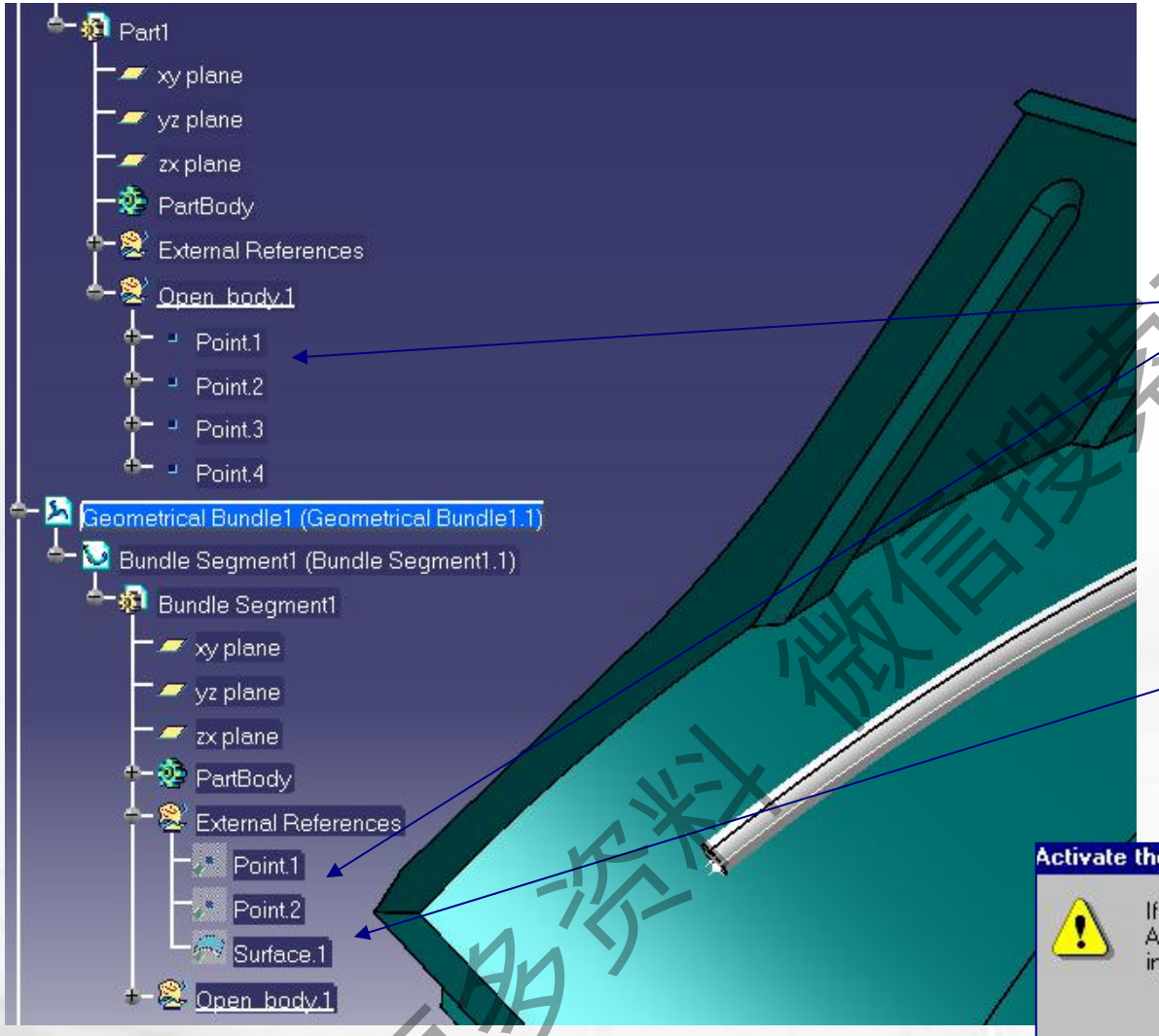
2 **You may have to invert the BNS orientation in case the surface orientation is not corresponding**

改方向

3 **If two BNS are on two distinct surfaces, you have to connect them with a third BNS not lying on any surface or create a join.**

连接两个不同面上的线束

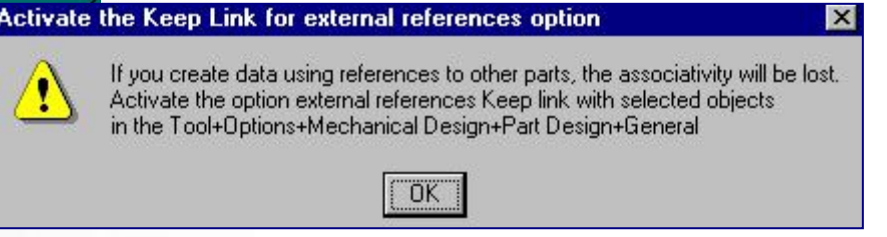
Define a bundle segment : following a surface (2/2)线束附着面



自动生成相关参考点和曲面

The external references to the points the BNS is using are created automatically.

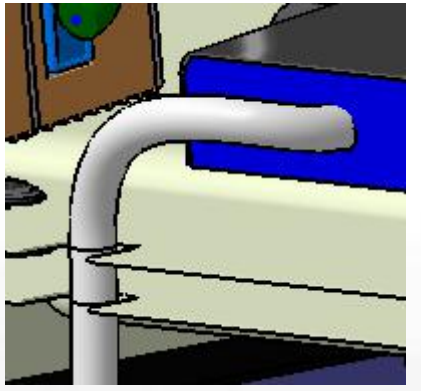
The surface the BNS is lying on is represented by an external reference as well.



Tools / Options / Mechanical Design / Part Design / General / External References : Keep Link with Selected Object.
Activate this option or you will loose the links to the objects that belong to other parts.

相关设置

Split a bundle segment (1/2)分割线束

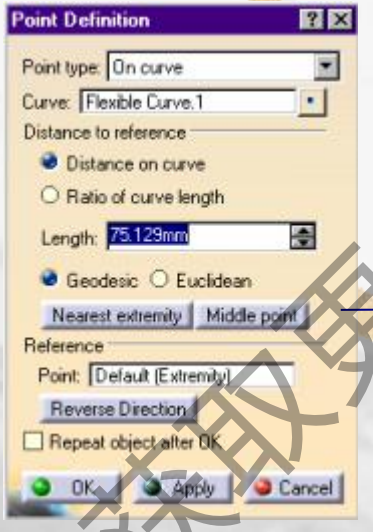


选图标 1

Select the “Bundle Segment” function

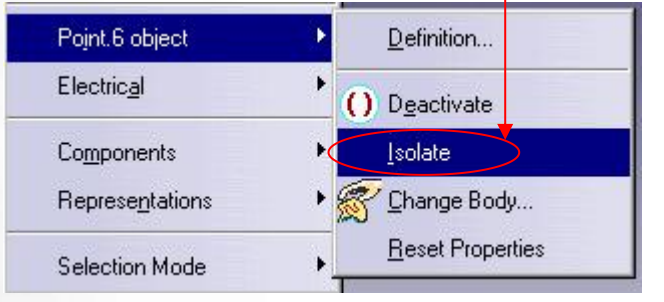
生成点

2 **Create a new point on the Bundle Segment spline (“on curve”)**



隔离点

3 **Isolate point**

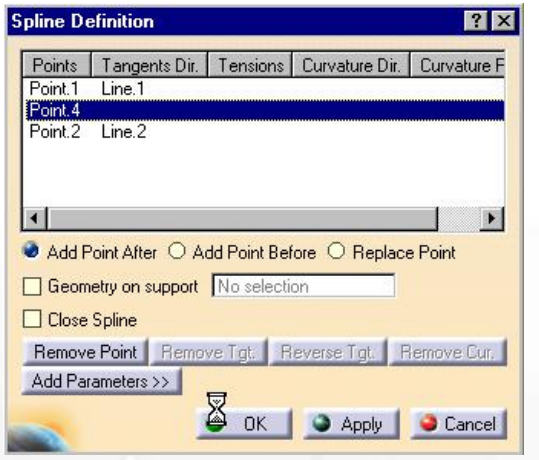


Split a bundle segment (2/2)

4

Add point to the BNS route definition

加入点



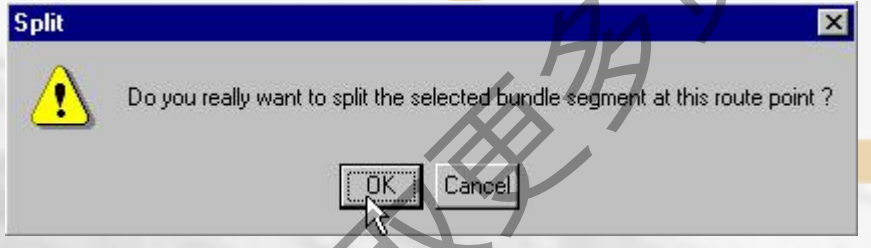
5

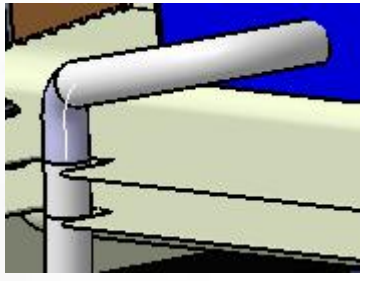
Exit the Bundle Segment command

退出

分割 6

Split the bundle segment





线束分割完毕

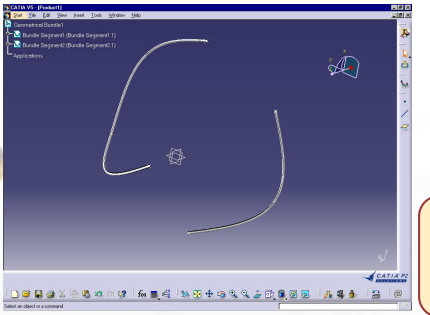
The BNS is split.

Links Management线束连接

Objective : You are going to learn how to connect two bundle segments together or to an electrical component

- *Link the electrical objects线束和电器连接*
- *Links management连接管理*

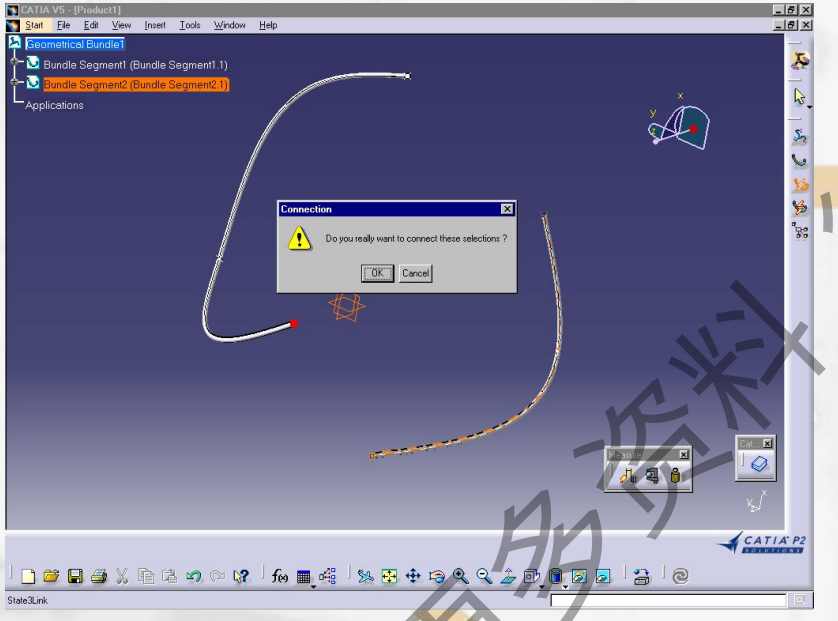
Between two bundle segments两线束之间连接



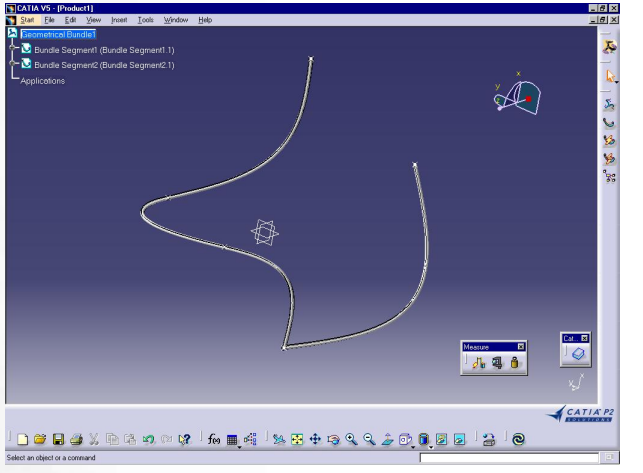
1 生成两线束

Create two bundle segments

选择图标和两线束 2



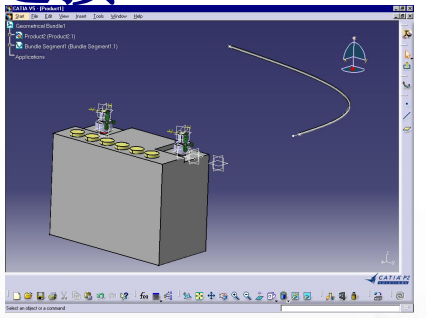
Select the “Link” function and both BNS, close to the extremity to link



The GBN is updated

连接

Between a bundle segment and an electrical component
线束和电器连接



产生设备和线束

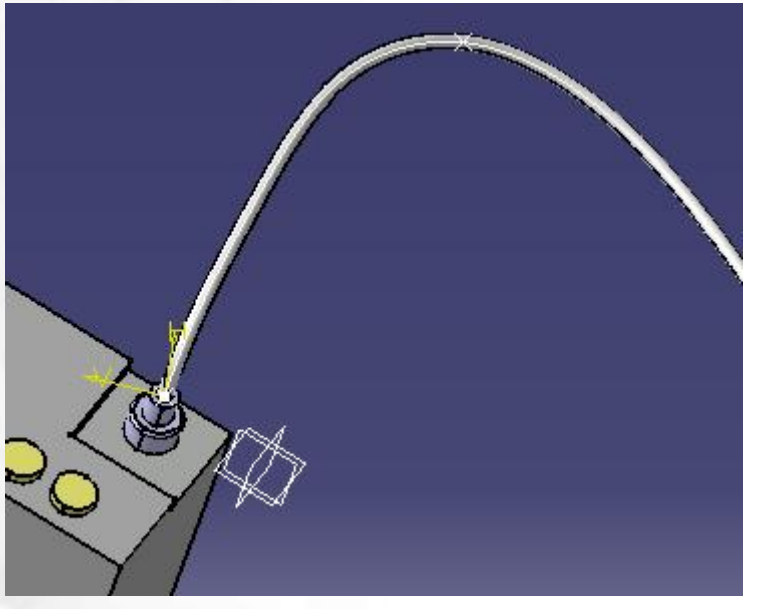
1

Create an equipment and a BNS within a GBN

选择LINK图标
线束和电器

2

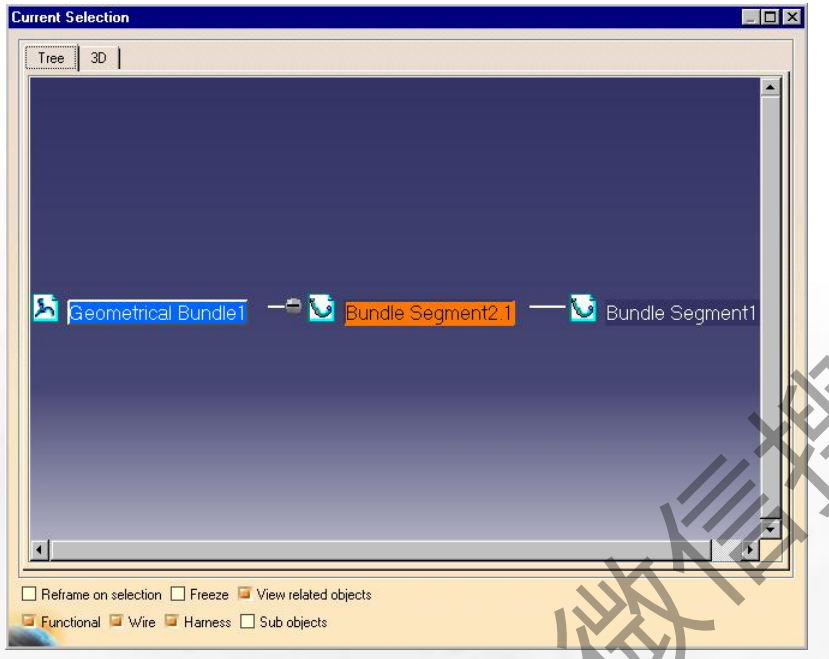
Select the function “Link”, the BNS and a connector

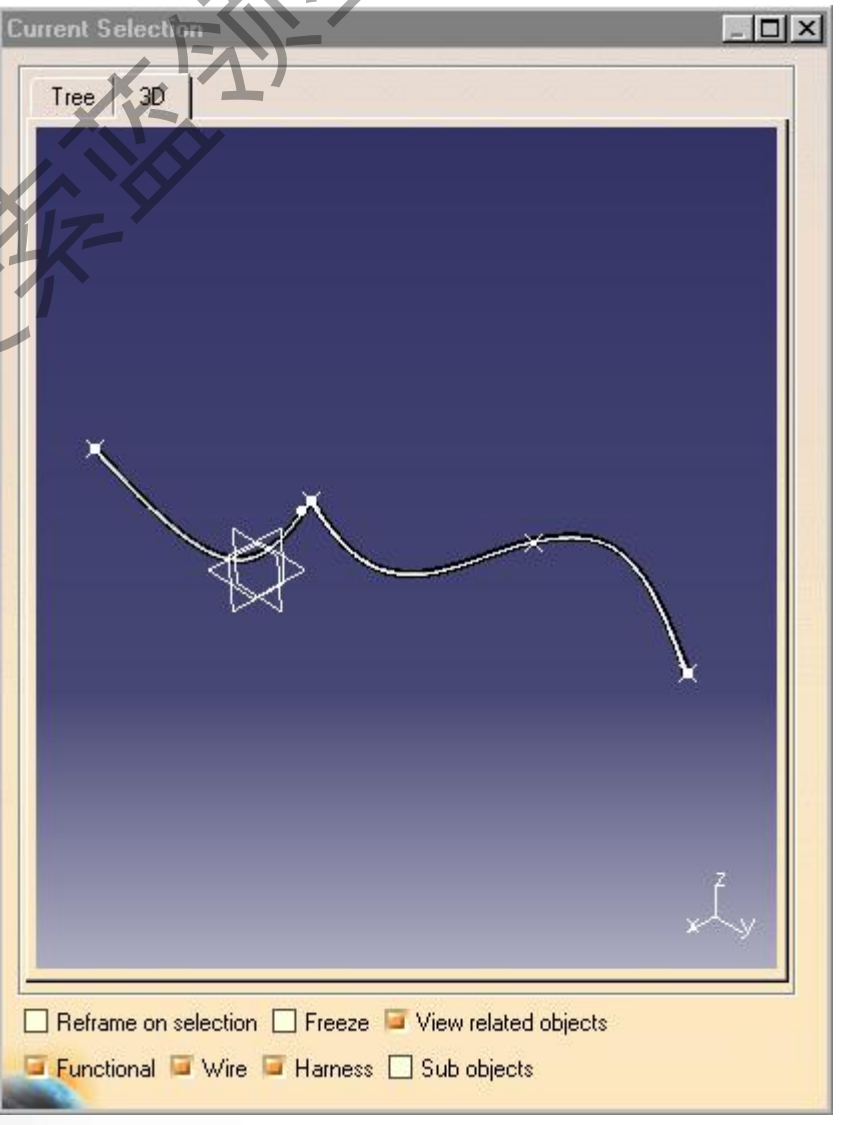


自动连接

The BNS got himself connected to the connector automatically

Links Visualization连接图示





Select the “Related Objects” function

“相关目标”图标

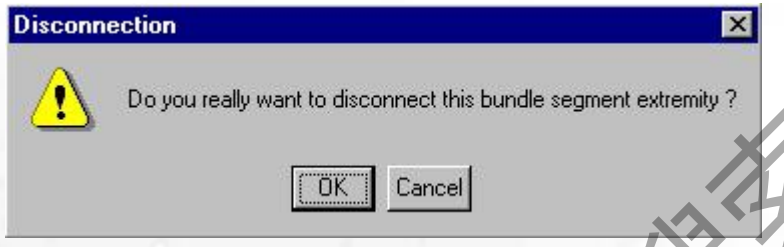
Unlink two electrical objects切断连接

1

Select the funtion “Unlink”

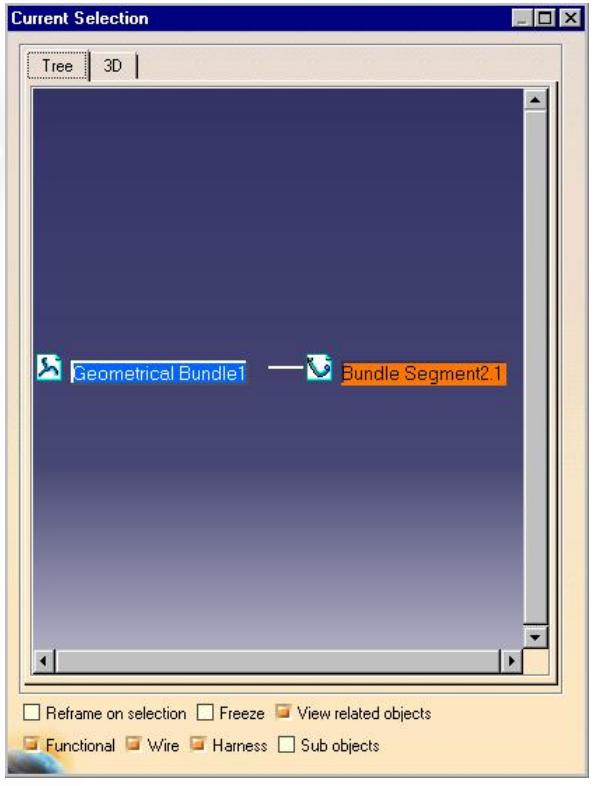
切断图标

2



The connection is lost but the geometry remains.

连接去掉，
线束还在

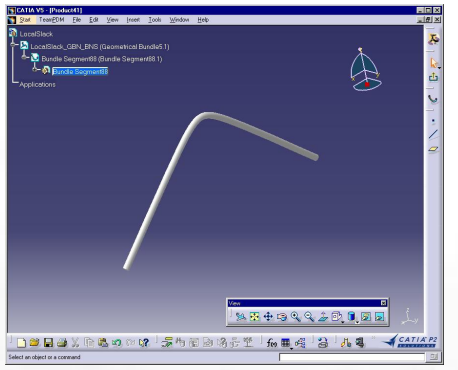


Local Slack Management松弛度

Objective : You are going to learn how to add or remove Slack locally along the bundle segment

- *Add Local Slack增加*
- *Remove Local Slack去掉*

Add Local Slack to a bundle segment



1

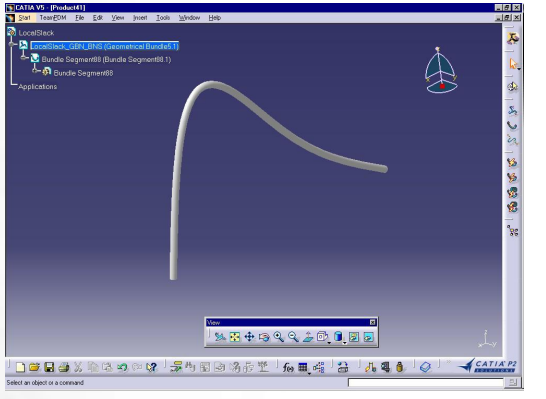
Select the “Add local slack to a bundle segment portion

图标

Select the bundle segment next to the point where the additional slack is to start. Click on “Add slack” , key Slack Definition value.

在线束上欲增加松弛度附近选点输入松弛度

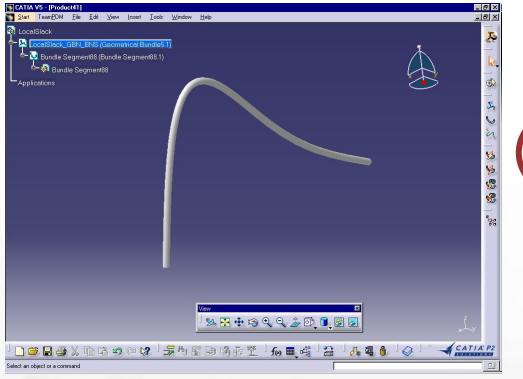
2



松弛加在选点之后的线束

Slack is added to the bundle segment after the point.

Removing Local Slack from a bundle segment去掉松弛



1

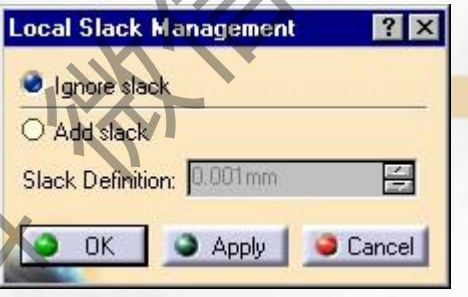
Select the “Add local slack to a bundle segment portion

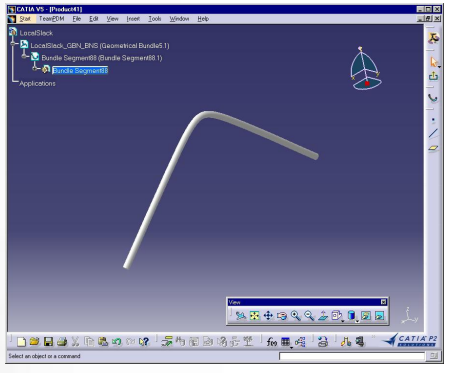
同样图标

Select the bundle segment to display the Local Slack Management Panel. Click on “Ignore Slack”

不同选项

2





取消松弛

Slack is Ignored and the bundle is modified

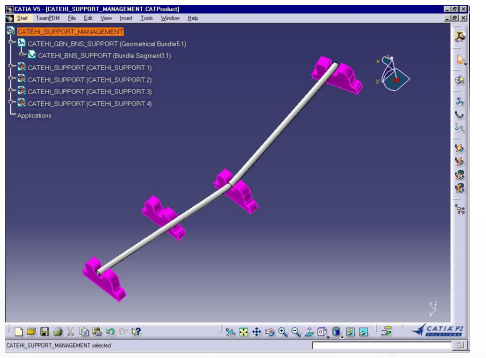
Support Management增加线束支撑

Objective : You are going to learn how to add a Support to a bundle segment and also how to remove a Support from a bundle segment

- *Add Support增加*
- *Remove Support去掉*

Add a support to a bundle segment

三支撑模型，支撑必须用Electrical Part Design中Support 命令定义



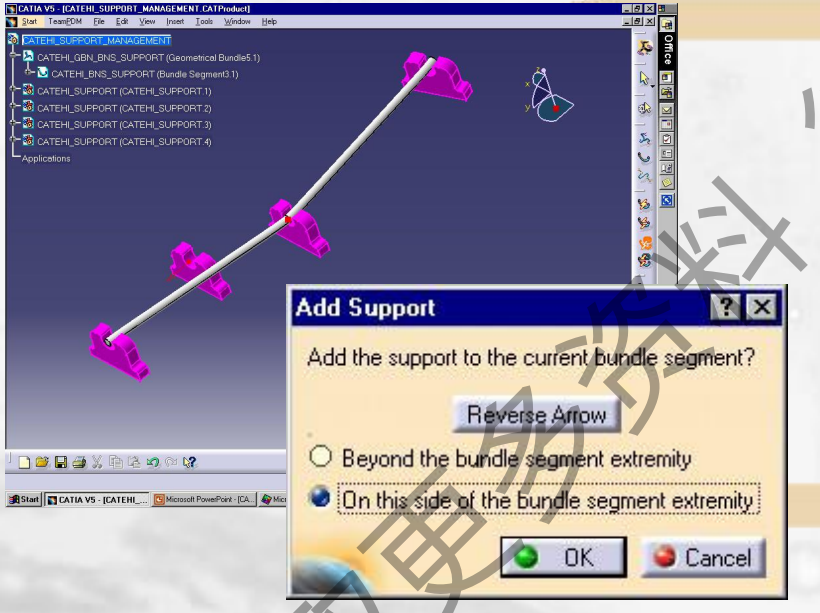
1

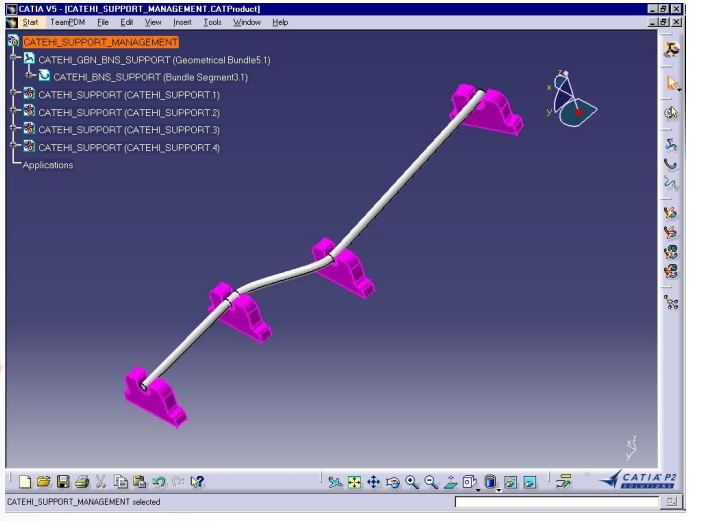
Create a bundle segment routed through 3 supports. Add an additional support.

选图标和第四支撑

2

Select the “Add Support to bundle segment” and select the bundle segment followed by the Support

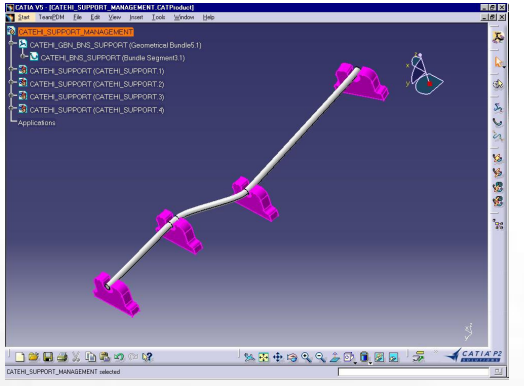




增加完毕

The bundle is routed Through the support

Remove a support去掉支撑

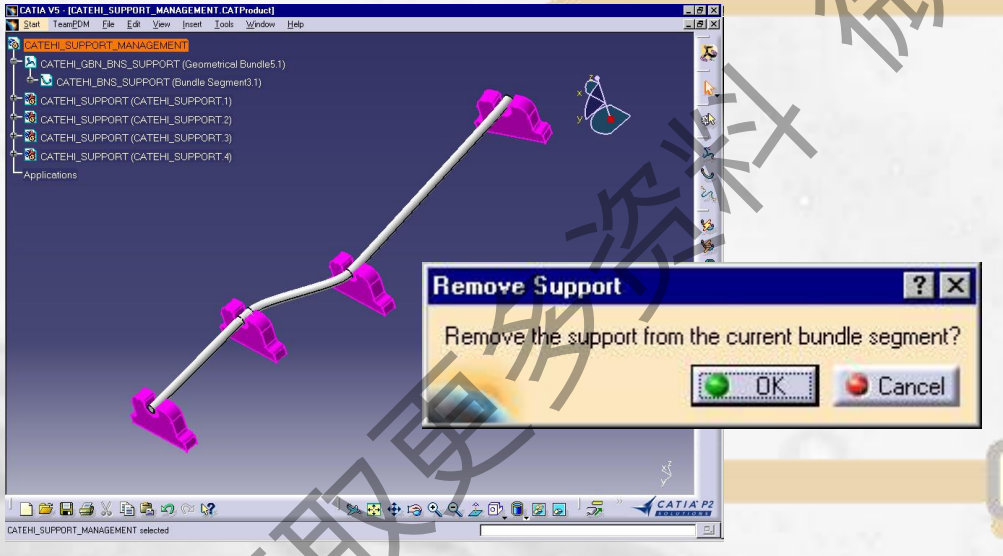


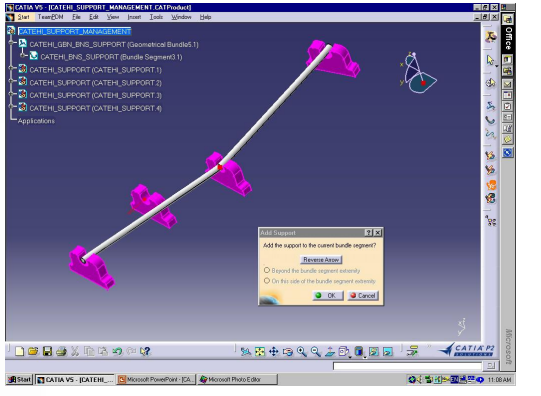
1

图标

2

Select the “Remove Support from bundle segment” and select the bundle segment





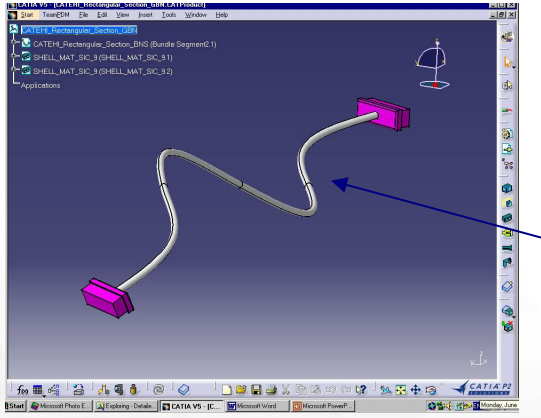
The Support is removed and the bundle route is modified

Section Management线束截面

Objective : You are going to learn how to change the section of a bundle segment from circular to rectangular.

- *Change Section更换截面*

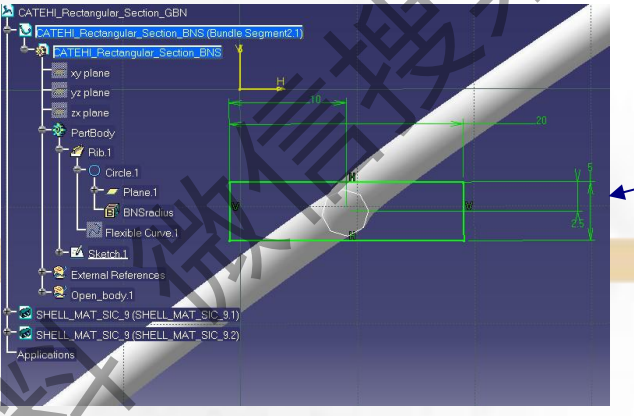
Replacing a circular section with a rectangular section



1 产生一个线束

Create a bundle segment

2



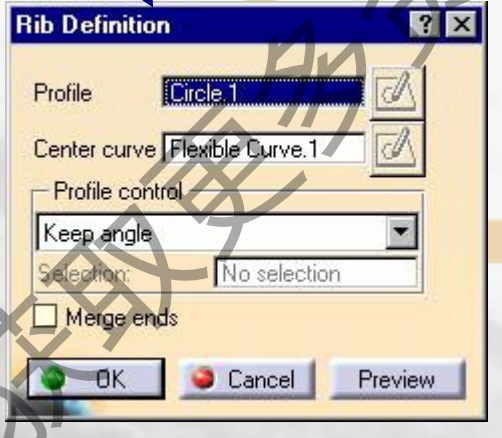
更换截面

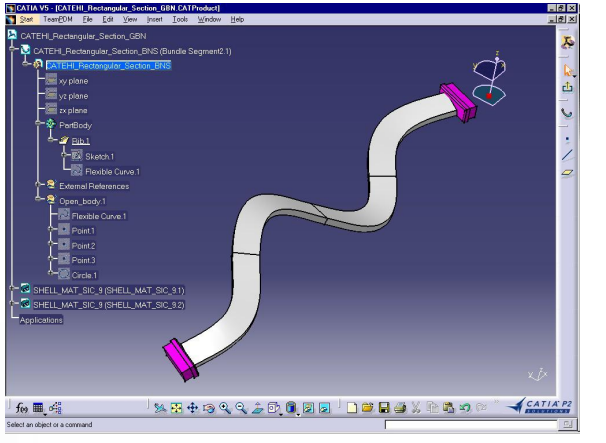
Activate the “Rib Definition” panel and select the rectangular profile

Sketch new rectangular profile on the same plane as the current bundle segment profile

增加截面草图

3





Floating Junction线束连接点

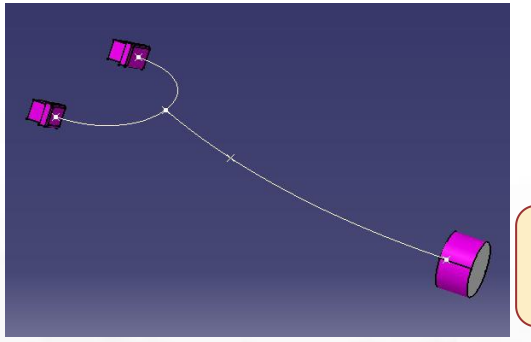
Objective : You are going to learn how to manage a floating bundle segment junction

- *Manage bundle segment Junction positioning修改连接点位置*

Floating Junction Management

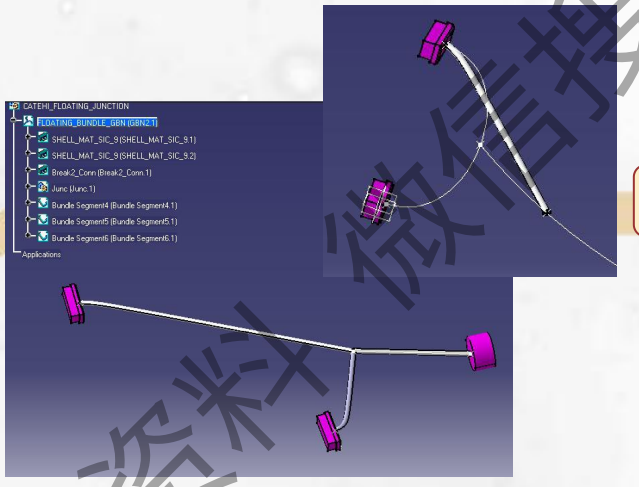
增加分支点

去掉分支点



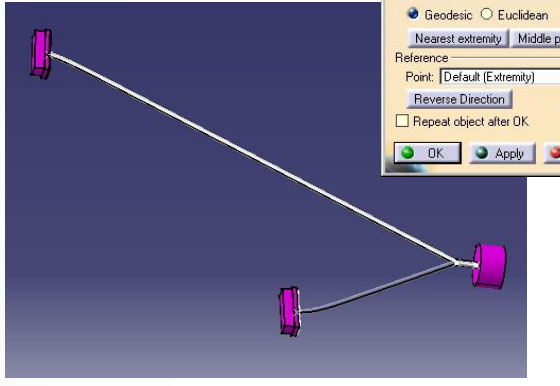
1

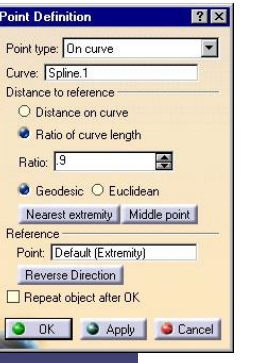
Define the constraint geometry for the floating junction



2

Create the bundle segments





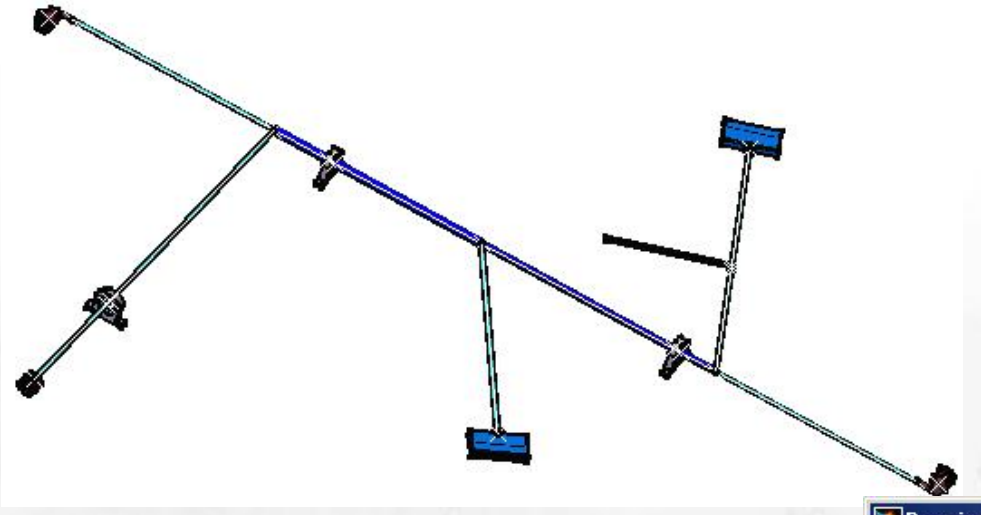
Move the Junction

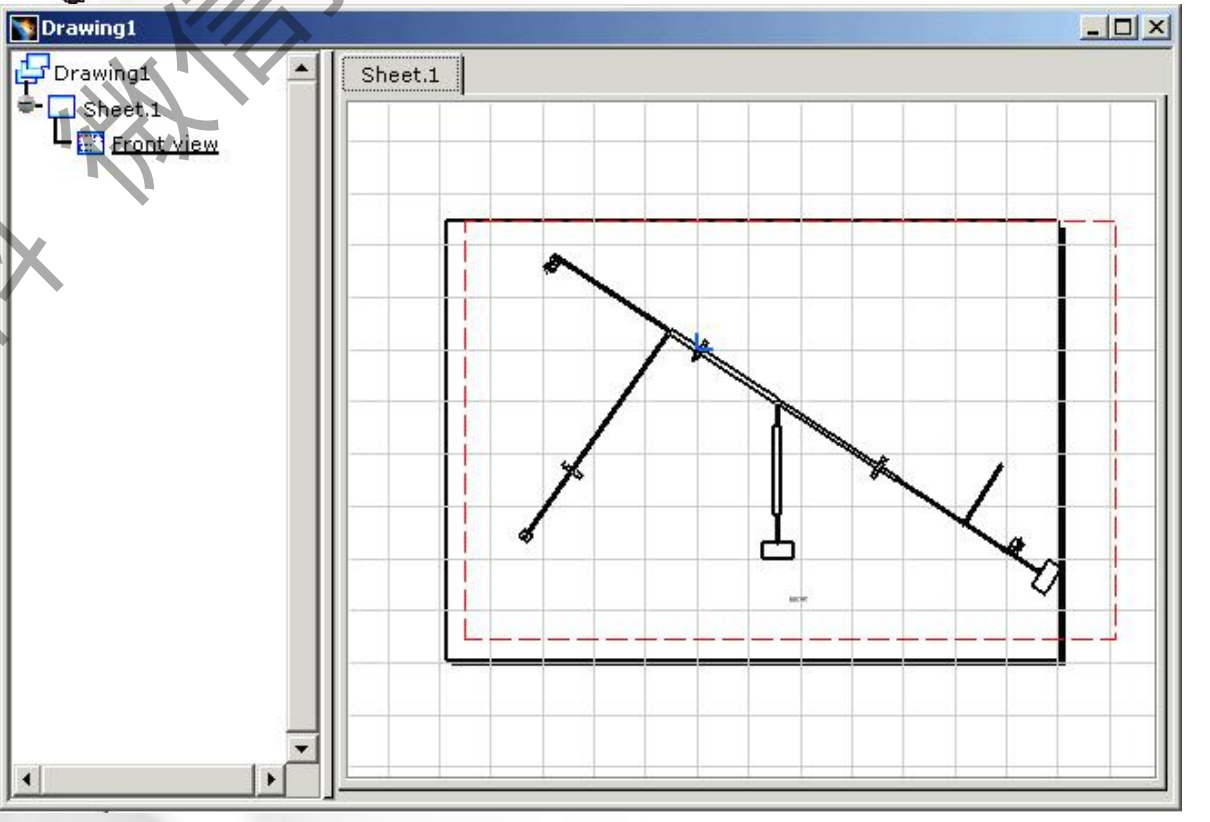
Electrical Harness Flatterning线束展平 

Electrical Harness Flattening offers the following main functions:

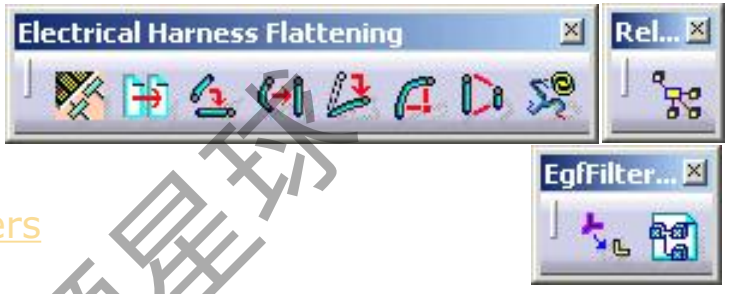
- it flattens bundle segments or electrical and geometrical bundles
- 展平线束
- it straightens bundle segments
- 拉直线束
- it rotates whole bundle segments or bend them at a defined point
- 旋转和弯曲线束
- it rolls bundle segments
- 卷线束
- it scales bundle segments by introducing fake lengths
- 线束变比例
- it can be updated at any time during your session thanks to the synchronization option 与实体关联和更新
- it allows you to choose the type of representation of your drawing
- 选择平面图的类型
- it allows you to annotate the wires of your drawing.
- 平面图标注

Getting Started Samples起始简例





Electrical Harness Flatterning线束展平



Defining Harness Flattening Parameters
定义展平参数

Extracting 3D Data输入三维线束

Flattening Harness线束展平

Straightening Bundle Segments
线束拉直

Rotating Bundle Segments
线束旋转

Rolling Bundle Segments
线束卷

Scaling Bundle Segments
线束变比例

Synchronizing the Environment
根据三维更新

Filtering Wires Based on External Configuration System
线束过滤

External Data Access获取外部数据

Related Objects相关目标