Inserting heterogeneities : Heterogeneities are inserted using parametric functions of the (x, y, z) coordinates of the nodes or the center of the elements to which a given `StGermain Variable Condition` is applied. As for regular BC and ICs, the latest may be defined either as a constant value set in the input file or as one of the function from the condition function register.

The geometric parameters of a heterogeneity are defined in the XML input file following the general syntax provided in
`Snac/plugins/heterogeneity/Hetero.xml.meta`.

Heterogeneities are inserted in the model in the same order you enter them in the xml file. For instance, if the second heterogeneity overlaps the space of the first heterogeneity for the same variable, the variable will be set to the value provided by the variable condition of the second heterogeneity.

Units are assumed to be the same with those for mesh geometry. Defult value of `a_shape` is set to 1.0 while defult values of `b_shape` to `e_shape` are set to 0.0. Default geometry is `FrontLimit`.

This means that by default the program will set all the point behind 0 to the value defined by the provided `Variable Condition`. For normally set (i.e., $z_{min} \geq 0$)model, nothing is going to happen.

There are currently 11 shape functions in this plugins:

1. Dyke: $2(Ax + By + Cz + D)^2/(A^2 + B^2 + C^2) \leq t$
2. Sphere: $(x - Xc)^2 + (y - Yc)^2 + (z - Zc)^2 \leq r^2$
3. Cylinder: $x = C_x z + p$; $y = C_y z + q$; $[(x - Az - p)^2 + (y - Cz - q)^2 + (C(x - p) + A(y - q))^2]/(A^2 + C^2 + 1) \leq r^2$
4. Cylinder_V: $(x - Xc)^2 + (z - Zc)^2 \leq r^2$
5. Cylinder_H: $(x - Az - B)^2 \leq r^2$
6. UpperLimit: $y_p = -(Ax + Cz + D)/B \geq y$
7. LowerLimit: $y_p \leq y$
8. RightLimit: $x_p = -(By + Cz + D)/A \geq x$
9. LeftLimit: $x_p \leq x$
10. FrontLimit: $z_p = -(Ax + By + D)/C \geq z$
11. BackLimit: $z_p \leq z$

	a_shape	b_shape	c_shape	d_shape	e_shape
Dyke	A	B	C	D	thickness (r)
Sphere	X_c	Y_c	Z_c	not used	radius (r)
Cylinder[a]	C_x	C_y	p	q	radius (r)
Cylinder_V	X_c	not used	Z_c	not used	radius (r)
Cylinder_H	C_x	not used	p	not used	radius (r)
UpperLimit[b]	A	B	C	D	not used
LowerLimit	A	B	C	D	not used
RightLimit[c]	A	B	C	D	not used
LeftLimit	A	B	C	D	not used
FrontLimit[d]	A	B	C	D	not used
BackLimit	A	B	C	D	not used

[a] will not work for vertical.
[b] will not work for vertical.
[c] will not work for $x = const$ vertical plane.
[d] will not work for $z = const$ vertical plane.

For programers : To create a new shape, add the geometric function in `TestCondFunc.c` and declare it in `SnacHetero.h`. And call it within the function `Is_coord_Inside` in `TestCondFunc.c` by creating a new case in the `switch-case` block. Also define a name of the geometry to be used in the XML input file in `SnacHeterogeneity_InitialConditions.c`. Don't forget to update this documentation! ;-)