Proposal for new turbomachinery specific boundary conditions

This boundary conditions are block faces with a “normal” connection to neighbouring blocks; But they are overlayed by additional specific information.

BCPeriodic

Description: The periodic boundary has to be treated like a multi-block interface with the full set of connectivity information.
Additional to this block boundary the following information is necessary

Information:

1.) Cartesian: x,y,z
1.1) shift axis: x || y || z
1.2.) offset:+-[m]

2.) Cylindrical:
2.1) r,phi,z
2.1.1) shift axis: z
2.1.2) offset: +-degree || +-number of segments over 360 degree
2.1.3) phase lag: +-seconds (default 0)

2.2) x, r, phi
2.2.1) shift axis: x
2.2.2) offset: +-degree || +-number of segments over 360 degree
2.2.3) phase lag: +-seconds (default 0)

BCRotorStator

Description: The RotorStator boundary condition has to be treated like a multi-block interface with the full set of connectivity information.
Additional to this block boundary the following information is necessary:

Information:

Mode: a.) steady, b.) unsteady

In the steady mode there are different techniques for treating this boundary.
In principle it is an Inflow/Outflow boundary (depends on the flow state) plus
an additional information from the corresponding block.
e.g. circumferential averaged (different techniques possible) flow variables
in the relative or absolute frame of reference.

The same situation for the unsteady mode. There are different techniques like sheared cells, patched cells..

I guess here is room for further discussions.