LDV-Measurements:

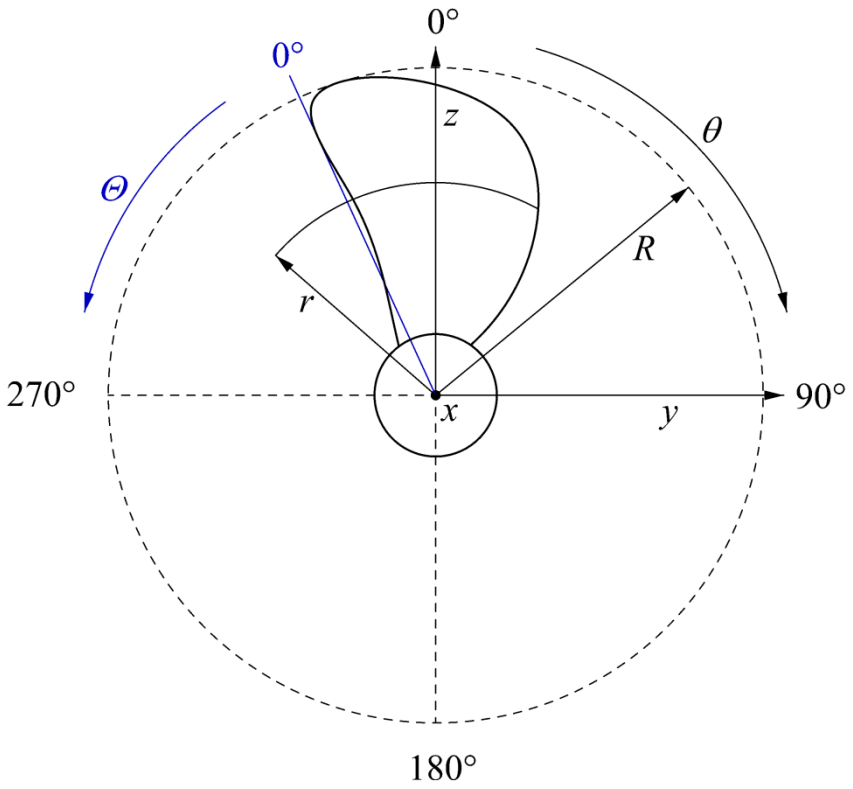
Please note, that the definition of the angular position given in the report and the provided data differs from the definition during the smp'11 workshop.

During the workshop the zero degree position of the data corresponded to the generator line of the propeller, with the angles θ being positive in direction of rotation. This coordinate system is defined in the rotating frame, moving with the propeller blade (propeller coordinate system) and defining the data in a geometrical sense from the generator line.

The provided LDV data however is generated in a fixed coordinate frame, recording the velocities as the propeller blade passes the measuring location as a function of the angular position Θ of the propeller. The zero degrees (Θ) corresponds to a position on the trailing edge.

The transformation of the data from the fixed frame (θ) to the rotating frame (Θ) can be carried out as follows:

$$\theta = -\Theta - 26°$$



The velocities are defined as follows:

- Radial velocities are positive with increasing radii
- Tangential velocities are positive in direction of rotation
- Axial velocities are positive in flow direction