

Desired  $PR^*$ : 1.24

$$\frac{r_h}{r_1}^* = 0.35 \frac{m}{m} \quad \frac{r_1}{r_2}^* = 0.65 \frac{m}{m}$$

$$N^* = 48000 rpm$$

$$\text{Proposed efficiency } \eta^* = 0.6$$

$$\text{Exit swirl number } \lambda_2^*: 2$$

$$\text{Tolerance}^*: 0.01$$

Valid cases: 1249/1450

$$\eta_{max} = 0.812 \quad \eta_{min} = 0.47$$

$$W_{1t} = 637.979 m/s \quad C_{m1} = 359.0 m/s$$

$$U_{1t} = 527.387 m/s \quad M_{1f} = 0.277$$

$$U_{2t} = 811.364 m/s \quad U_{2t, crit} = 1081.125 m/s$$

$$r_{t1} = 0.105 m$$

$$r_{h1} = 0.037 m$$

$$r_{t2} = 0.161 m$$

$$N_{crit} = 63958.962 rpm$$