Test Case 1b: Joukowski Airfoil

- **Validation of steady CFD analysis, required**
  - https://github.com/Drag-Prediction-Workshop/DPW8-Scatter/blob/main/TestCase1b/Joukowski.pdf
- **Settings**
  - Steady CFD RANS **French Vanilla SA-[neg] (All terms!)**
    - Adiabatic Wall (not isothermal)
    - Characteristic Farfield (***1000 chords away***)
    - Use periodic boundary conditions for sidewall boundary conditions
  - Converge residuals to machine precision (~1e-10)
- **Grids**
  - Committee-supplied grid family
- **Conditions**

Mach	Re_c	T_{static}	α	γ	Pr	Pr_t	Farfield $\chi = \tilde{\nu}/\nu$
0.15	6×10^6	520.0 R	0.0°	1.4	0.72	0.9	3

- **Sutherland's Law**

$$\mu(T) = \mu_0 \left(\frac{T}{T_0}\right)^{3/2} \left(\frac{T_0 + S}{T + S}\right) \quad \mu_0 = 1.716 \times 10^{-5} \frac{\text{kg}}{m\,s} \quad T_0 = 491.6°\ R \quad S = 198.6°\ R \quad \frac{\mu(T)}{\mu_{ref}} = \left(\frac{T}{T_{ref}}\right)^{3/2} \left(\frac{1 + S/T_{fef}}{T/T_{fef} + S/T_{fef}}\right)$$