

SCMS Seminar



VALIDITY OF STEADY PRANDTL EXPANSION

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Lecture

Time: 10:00-10:50, Wednesday, July 24, 2019

Venue: Room 102, Shanghai Center for Mathematical Sciences

Abstract: In a joint work with Sameer Iyer, the validity of steady Prandtl layer expansion is established in a channel. Our result covers the celebrated Blasius boundary layer profile, which is based on uniform quotient estimates for the derivative Navier-Stokes equations, as well as a positivity estimate at the flow entrance.

$$b_i = \frac{\sum_{j=1}^{i-1} a_{ij} x_j^{(k)} + \sum_{j=i+1}^n a_{ij} x_j^{(k)}}{x_{i+1}^{a_{ij}}}$$

$$\Delta y_i = \int_{x_i}^{x_{i+1}} y' dx$$

$$\int_{x_k}^{x_{k+1}} f(x, y) dx = \int_{x_k}^{x_{k+1}} y' dx = y(x)$$

$$\sqrt{(y_n + 0.5\tau k_1)^2 + (t_n + 0.5\tau)^2}$$