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$$C_\mu = 1 \quad \sigma_\varepsilon = 1 \quad \sigma_k = 1$$

$$y^+ < \quad [ ]$$

Van Driest

$$\nu_t = \kappa \nu \left[ \left( \frac{y u_\tau}{\nu} \right) - 9.7 \tanh \left( \frac{y u_\tau}{9.7 \nu} \right) \right] \quad ( )$$

$$u = v = 0 \rightarrow k = \sqrt{u^2} / 2 = 0 \quad ( )$$

( )

$$\varepsilon_w = \nu \frac{\partial^2 k}{\partial y^2}$$

$$\varepsilon_w$$

$$\varepsilon_w = \lim_{y \rightarrow 0} \frac{2 \nu k}{y^2} \quad ( )$$

$$\frac{\partial U_j}{\partial x_j} = 0$$

$$\frac{\partial U_i}{\partial t} + U_j \frac{\partial U_i}{\partial x_j} = - \frac{\partial p}{\partial x_i} +$$

$$\frac{\partial}{\partial x_j} \left[ \nu \left( \frac{\partial U_j}{\partial x_i} + \frac{\partial U_i}{\partial x_j} \right) \right] - \frac{\partial}{\partial x_j} (\overline{u_j u_i})$$

$$\frac{\partial T}{\partial t} + U_j \frac{\partial T}{\partial x_j} = \frac{\partial}{\partial x_j} \left( \alpha \frac{\partial T}{\partial x_j} \right) - \frac{\partial}{\partial x_j} (\overline{\theta u_j})$$

$$- (\overline{u_j u_i})$$

-(\theta u\_j)

[ ]

[ ] ( )

$$-\overline{u_i u_j} = \nu_t \frac{\partial U}{\partial y} \quad ( )$$

y^+ > [ ]

[ ]

$$\frac{\partial k}{\partial t} + U_j \frac{\partial k}{\partial x_j} = -(\overline{u_j u_i}) \frac{\partial U_i}{\partial x_j} - \varepsilon +$$

$$\frac{\partial}{\partial x_j} \left( \left( \nu + \frac{\nu_t}{\sigma_k} \right) \frac{\partial k}{\partial x_j} \right)$$

c° [ ] [ ]

$$\frac{\partial \varepsilon}{\partial t} + U_j \frac{\partial \varepsilon}{\partial x_j} = \frac{\varepsilon}{k} (-C_{\varepsilon 1} \overline{u_j u_i}) \frac{\partial U}{\partial x_j} - C_{\varepsilon 2} \varepsilon +$$

Re\_x

$$\frac{\partial}{\partial x_j} \left( \left( \nu + \frac{\nu_t}{\sigma_\varepsilon} \right) \frac{\partial \varepsilon}{\partial x_j} \right)$$

( )

$$(\overline{u_j u_i}) = -C_\mu \frac{k^2}{\varepsilon} \frac{\partial U}{\partial x_j} \quad ( )$$

c°

$$C_{\varepsilon 2} = 1 \quad C_{\varepsilon 1} = 1$$



Re<sub>x</sub>

(y<sup>+</sup> ≤ 5)

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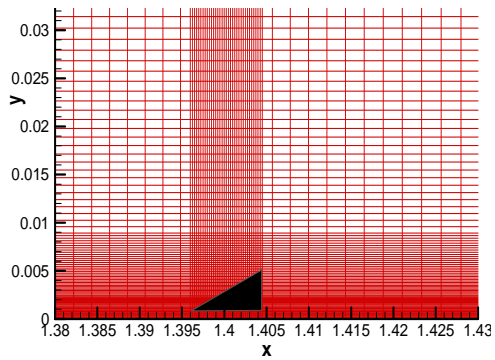
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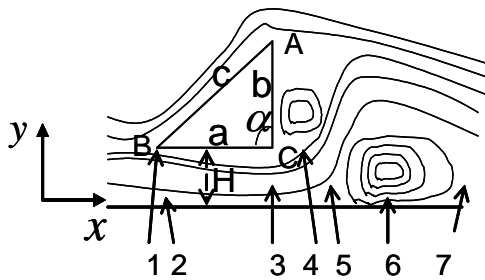
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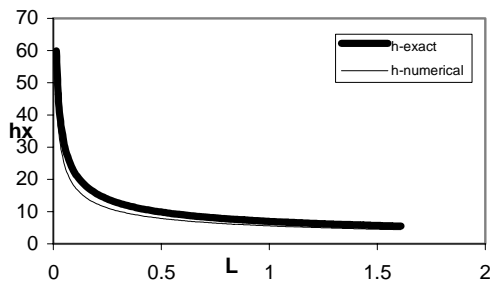
$Re_x$   $BC$



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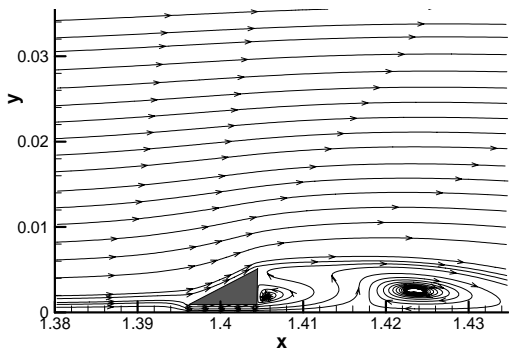
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$a$

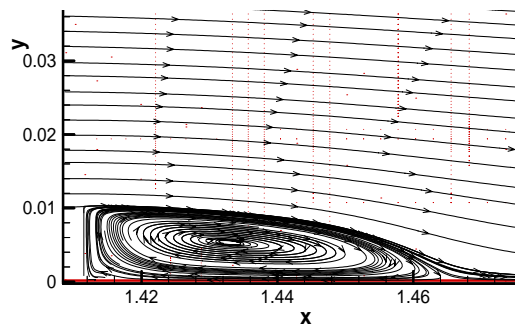
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$\alpha$

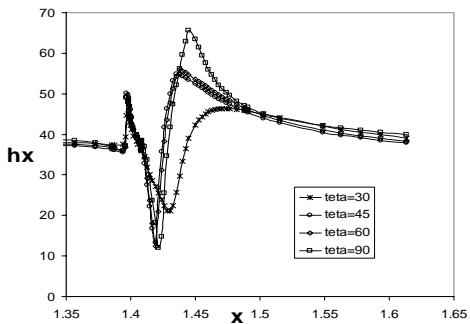




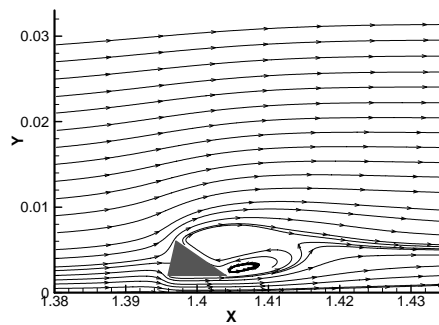
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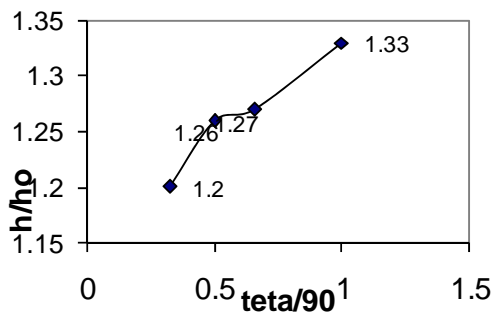
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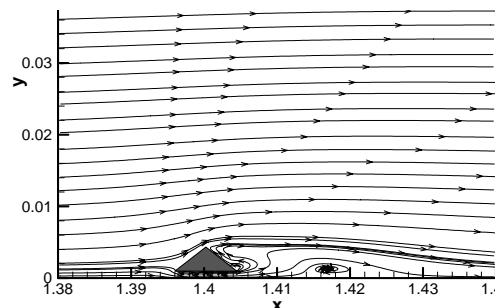
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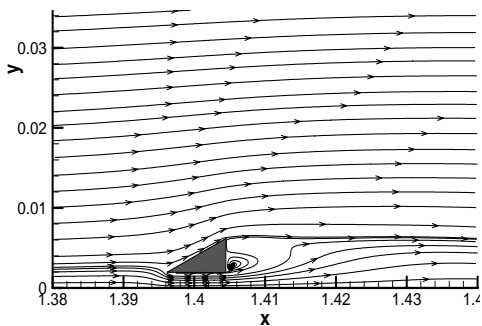
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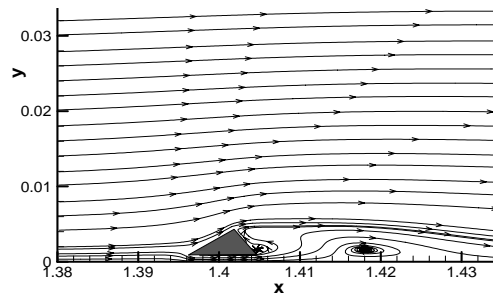


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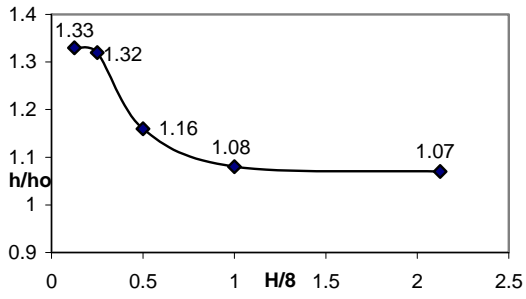
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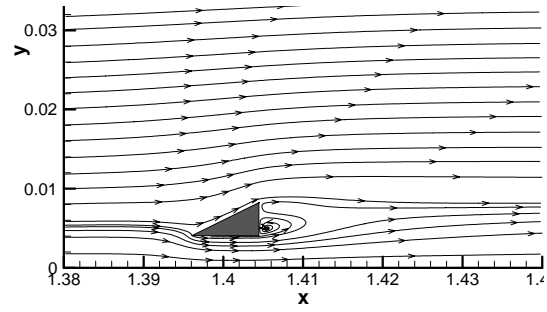


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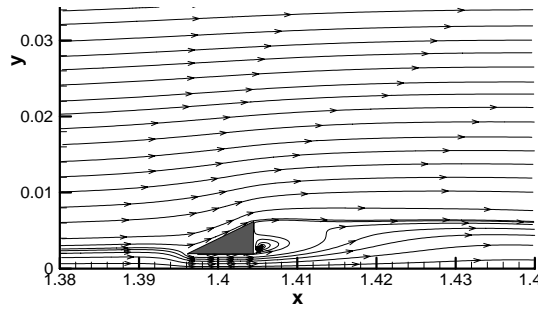




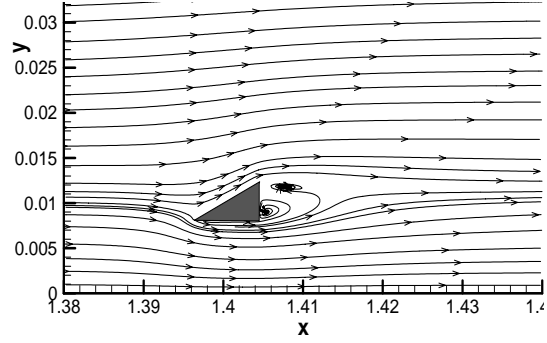
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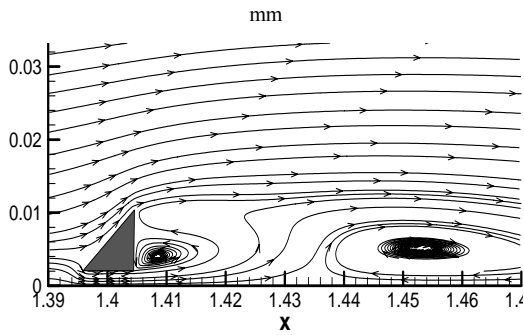
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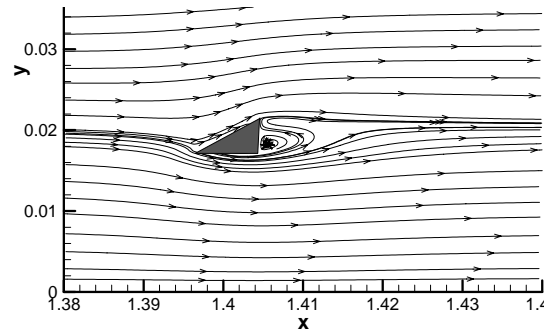
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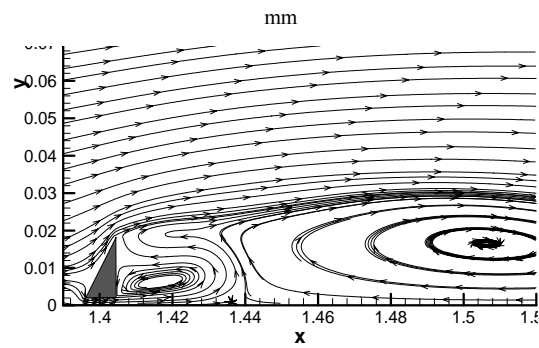
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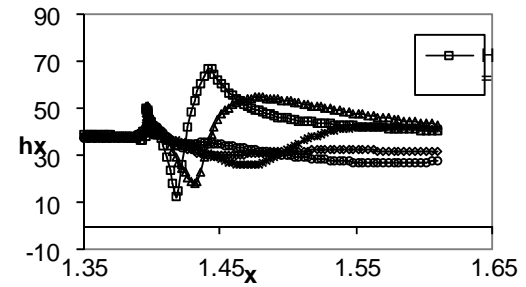
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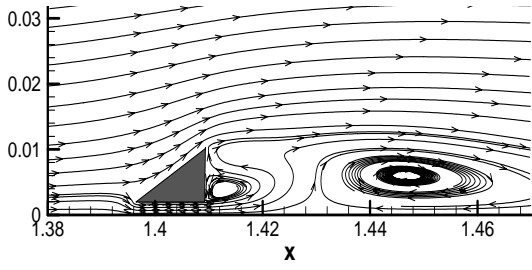
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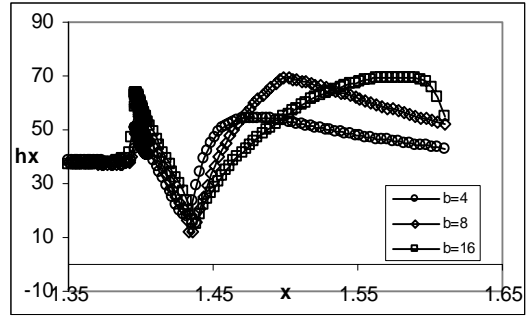
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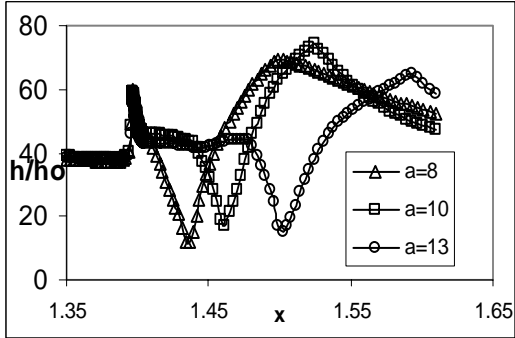


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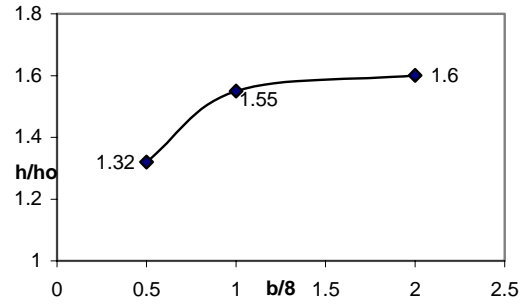
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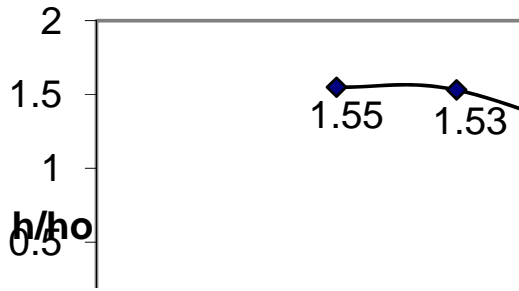
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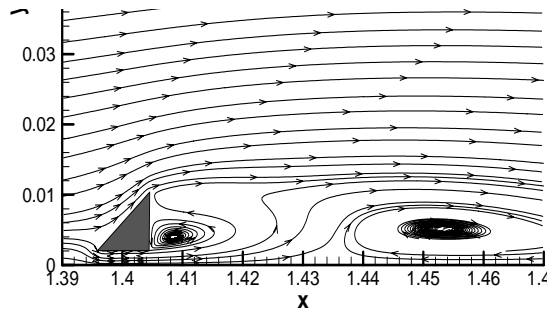
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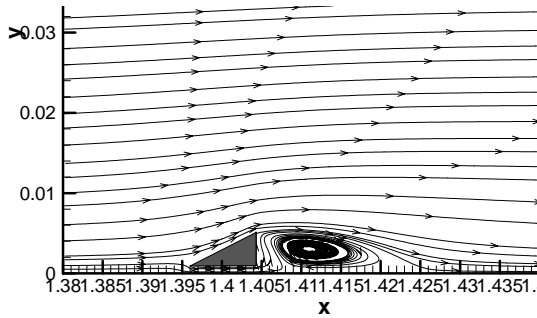


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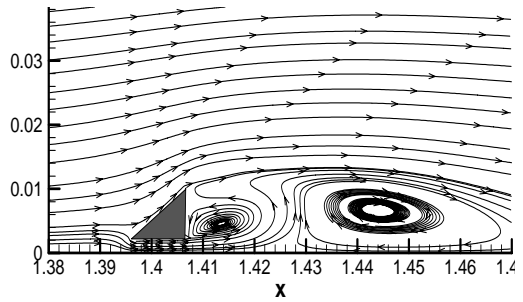
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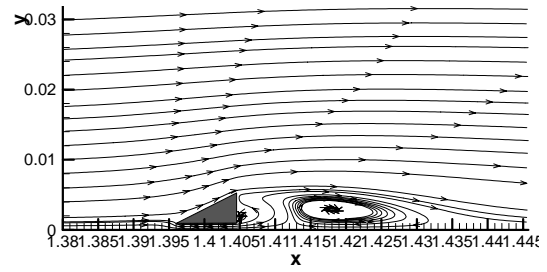
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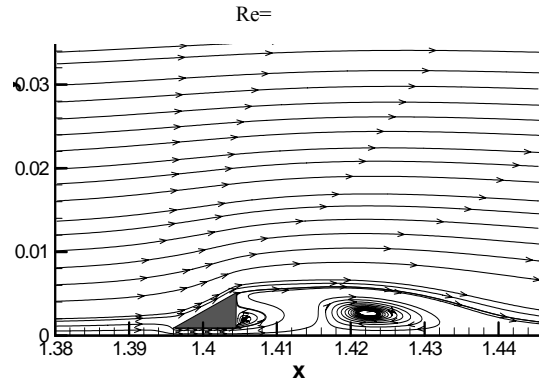
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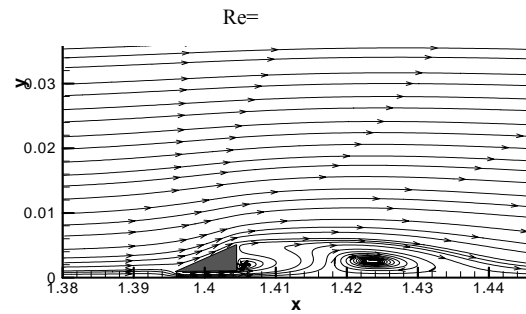
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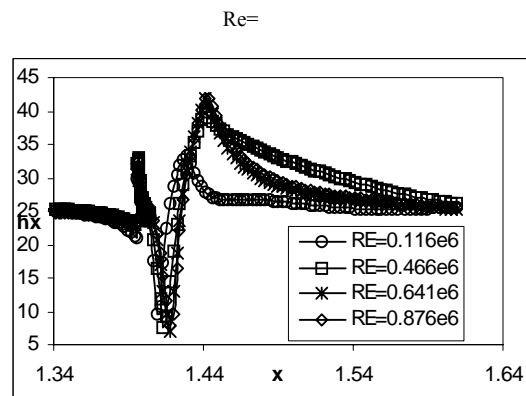
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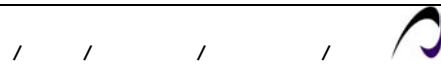
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<sup>1</sup> Vortex Generator (VG)

<sup>2</sup> Reichardt

<sup>3</sup> Buffer layer

<sup>4</sup> Logarithmic Layer

