

GIORIA, Rafael dos Santos. **Estudo da estabilidade secundária da esteira de um cilindro em oscilação forçada**. São Paulo. 2010. (Doutorado) Escola Politécnica, Universidade de São Paulo, São Paulo, 2005.

ERRATA

Pág.	Linha	Onde se lê	Leia-se
16	2 ^a	$\Delta x \rightarrow \infty$	$\Delta x \rightarrow 0$
16	7 ^a	interpoladora que melhor aproxima a solução.	interpoladora de maior ordem, aproximando melhor a solução.
22	2 ^a	escorregamento e a velocidade é nula.	escorregamento.
23	eq. (2.3)	$\mathbf{u}^{n+1} - \mathbf{u}^n = - \int_{t_n}^{t_{n+1}} \nabla p \, dt$ $+ \frac{1}{Re} \int_{t_n}^{t_{n+1}} \mathbb{L}(\mathbf{u}) \, dt + \int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) \, dt$	$\mathbf{u}^{n+1} - \mathbf{u}^n = - \int_{t_n}^{t_{n+1}} \nabla p \, dt$ $+ \frac{1}{Re} \int_{t_n}^{t_{n+1}} \mathbb{L}(\mathbf{u}) \, dt - \int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) \, dt$
24	eq. (2.4)	$\int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) \, dt = \Delta t \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n-q})$	$\int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) \, dt = \Delta t \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n+1-q})$
24	eq. (2.7a)	$\frac{\hat{\mathbf{u}} - \mathbf{u}^n}{\Delta t} = \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n-q})$	$\frac{\hat{\mathbf{u}} - \mathbf{u}^n}{\Delta t} = \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n+1-q})$
25	1 ^a	\mathbf{u}_0	$\mathbf{u}_0 = U_\infty$
25	1 ^a eq.	$\mathbf{u}^{n+1} = \mathbf{u}_0 \quad \text{em } \partial\Omega$	$\mathbf{u}^{n+1} = \mathbf{u}_0 \quad \text{em } \partial\Omega_D$
25	eq. (2.10)	$\int_{t_m}^{t^{n+1}} \frac{\partial \mathbf{u}}{\partial t} \cdot \mathbf{n} \, dt = - \int_{t_m}^{t^{n+1}} \nabla p \cdot \mathbf{n} \, dt$ $+ \frac{1}{Re} \int_{t_m}^{t^{n+1}} \mathbb{L}(\mathbf{u}) \cdot \mathbf{n} \, dt$ $- \int_{t_m}^{t^{n+1}} \mathbb{N}(\mathbf{u}) \cdot \mathbf{n} \, dt, \quad \text{em } \partial\Omega$	$\int_{t_n}^{t^{n+1}} \frac{\partial \mathbf{u}}{\partial t} \cdot \mathbf{n} \, dt = - \int_{t_n}^{t^{n+1}} \nabla p \cdot \mathbf{n} \, dt$ $+ \frac{1}{Re} \int_{t_n}^{t^{n+1}} \mathbb{L}(\mathbf{u}) \cdot \mathbf{n} \, dt$ $- \int_{t_n}^{t^{n+1}} \mathbb{N}(\mathbf{u}) \cdot \mathbf{n} \, dt, \quad \text{em } \partial\Omega$
25	6 ^a	seguinte forma:	seguinte forma (KARNIADAKIS; SHERWIN, 2005):
25	eq. (2.10)	$\frac{\partial \bar{p}^{n+1}}{\partial \mathbf{n}} = \mathbf{n} \cdot \left[\sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n-q}) \right]$ $+ \frac{1}{Re} \sum_{q=0}^{J_i-1} \gamma_q \nabla (\nabla \cdot \mathbf{u}^{n+1-q})$ $+ \frac{1}{Re} \sum_{q=0}^{J_i-1} \beta_q (-\nabla \times (\nabla \times \mathbf{u}^{n-q})) \right]$	$\frac{\partial \bar{p}^{n+1}}{\partial \mathbf{n}} = \mathbf{n} \cdot \left[\sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n+1-q}) \right]$ $+ \frac{1}{Re} \sum_{q=0}^{J_i-1} \gamma_q \nabla (\nabla \cdot \mathbf{u}^{n+1-q})$ $+ \frac{1}{Re} \sum_{q=0}^{J_i-1} \gamma_q (-\nabla \times (\nabla \times \mathbf{u}^{n-q})) \right]$
27	5 ^a	para fluido	para escoamento
27	15 ^a	na direção do eixo	na direção do eixo do cilindro
29	17 ^a	malha deslizante;	malha deslizante (não aplicável para oscilação transversal de um cilindro);
29	29 ^a	principalmente no caso	por exemplo o caso

Pág.	Linha	Onde se lê	Leia-se
35	14 ^a	termo advectivo linearizado.	termo convectivo linearizado.
87	1 ^a	têm 12 diâmetros de comprimento	têm domínio com 12 diâmetros de comprimento
91	14 ^a	pequenas perturbações	pequenas instabilidades
153	eq. (A.12)	$\mathbf{u}^{n+1} - \mathbf{u}^n = - \int_{t_n}^{t_{n+1}} \nabla p dt + \frac{1}{Re} \int_{t_n}^{t_{n+1}} \mathbb{L}(\mathbf{u}) dt + \int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) dt$	$\mathbf{u}^{n+1} - \mathbf{u}^n = - \int_{t_n}^{t_{n+1}} \nabla p dt + \frac{1}{Re} \int_{t_n}^{t_{n+1}} \mathbb{L}(\mathbf{u}) dt - \int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) dt$
153	eq. (A.13)	$\int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) dt = \Delta t \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n-q})$	$\int_{t_n}^{t_{n+1}} \mathbb{N}(\mathbf{u}) dt = \Delta t \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n+1-q})$
154	eq. (A.16a)	$\frac{\hat{\mathbf{u}} - \mathbf{u}^n}{\Delta t} = \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n-q})$	$\frac{\hat{\mathbf{u}} - \mathbf{u}^n}{\Delta t} = \sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n+1-q})$
154	7 ^a	\mathbf{u}_0	$\mathbf{u}_0 = U_\infty$
154	4 ^a eq.	$\mathbf{u}^{n+1} = \mathbf{u}_0 \quad \text{em } \partial\Omega$	$\mathbf{u}^{n+1} = \mathbf{u}_0 \quad \text{em } \partial\Omega_D$
155	eq. (A.19)	$\int_{t_m}^{t^{n+1}} \frac{\partial \mathbf{u}}{\partial t} \cdot \mathbf{n} dt = - \int_{t_m}^{t^{n+1}} \nabla p \cdot \mathbf{n} dt + \frac{1}{Re} \int_{t_m}^{t^{n+1}} \mathbb{L}(\mathbf{u}) \cdot \mathbf{n} dt - \int_{t_m}^{t^{n+1}} \mathbb{N}(\mathbf{u}) \cdot \mathbf{n} dt, \quad \text{em } \partial\Omega$	$\int_{t_n}^{t^{n+1}} \frac{\partial \mathbf{u}}{\partial t} \cdot \mathbf{n} dt = - \int_{t_n}^{t^{n+1}} \nabla p \cdot \mathbf{n} dt + \frac{1}{Re} \int_{t_n}^{t^{n+1}} \mathbb{L}(\mathbf{u}) \cdot \mathbf{n} dt - \int_{t_n}^{t^{n+1}} \mathbb{N}(\mathbf{u}) \cdot \mathbf{n} dt, \quad \text{em } \partial\Omega$
155	16 ^a	seguinte forma:	seguinte forma (KARNIADAKIS; SHERWIN, 2005):
155	eq. (A.21)	$\frac{\partial \bar{p}^{n+1}}{\partial \mathbf{n}} = \mathbf{n} \cdot \left[\sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n-q}) + \frac{1}{Re} \sum_{q=0}^{J_i-1} \gamma_q \nabla(\nabla \cdot \mathbf{u}^{n+1-q}) + \frac{1}{Re} \sum_{q=0}^{J_i-1} \beta_q (-\nabla \times (\nabla \times \mathbf{u}^{n-q})) \right]$	$\frac{\partial \bar{p}^{n+1}}{\partial \mathbf{n}} = \mathbf{n} \cdot \left[\sum_{q=0}^{J_e-1} \beta_q \mathbb{N}(\mathbf{u}^{n+1-q}) + \frac{1}{Re} \sum_{q=0}^{J_i-1} \gamma_q \nabla(\nabla \cdot \mathbf{u}^{n+1-q}) + \frac{1}{Re} \sum_{q=0}^{J_i-1} \gamma_q (-\nabla \times (\nabla \times \mathbf{u}^{n-q})) \right]$
156	21 ^a	para fluido	para escoamento
160	10 ^a	escoamento do fluido incompressível	escoamento incompressível
160	12 ^a	termo advectivo.	termo convectivo.
161	7 ^a	termo advectivo linearizado.	termo convectivo linearizado.