

High order difference methods for time dependent PDE

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Errata

Page	Line	Reads	Should be
18	-5	$v^{(p)}(t)$	$w^{(p)}(t)$
18	-1	$ w_j^{(2)}(t) $	$w^{(2)}(t)$
19	3	$ w_j^{(2)}(t) $	$w^{(2)}(t)$
26	-11	$dx \int_0^{2\pi} g^{(\nu)}(x) ^2 dx$	$dx = \int_0^{2\pi} g^{(\nu)}(x) ^2 dx$
26	-9		T and T^{-1} should be interchanged everywhere
27	7, 10	$\ F(\cdot, \tau)\ ^2$	$\ F(\cdot, \tau)\ $
28	-5, -2	$i\omega$	$i\omega$
29	-13	$e^{-\omega x_j}$	$e^{-\omega x_j h}$
30	7	$v(x)$	v_j
33	-11	\mathbf{f}^n	\mathbf{f}
37	16	$+\int_0^t$	$+\delta \int_0^t$
61	3	$-AD_0$	$-AD_0 u_j$
61	4	$[u_0^{(2)}, u_1^{(1)}, u_1^{(1)}, \dots]$	$[u_0^{(2)}, u_1^{(1)}, u_1^{(2)}, \dots]$
63	16	condition is satisfied	condition is not satisfied
80	-8	Theorem 2.9	the fully discrete version of Theorem 2.9
80	-6	$+\mathcal{O}(h^2)$	$+\mathcal{O}(kh^2)$
82	19	$\ u(\cdot, t_n)\ _h$	$\ w^n\ _h$
84	10--18	u	w in all formulas including (3.7)
84	-3, -2	u_0	w_0 (3 places)
85	-8	B_r	B_h
88	-5	$ch^p \frac{d^{p+1}}{dx^{p+1}} + \mathcal{O}(h^{p+1})$	$ch^p \frac{d^{p+1}u}{dx^{p+1}} + \mathcal{O}(h^{p+2})$
88	-3	$ch^p \omega^{p+1}$	$ci^{p+1} h^p \omega^{p+1}$
88	-1	$(\sin \frac{\xi}{2})^{2\nu}$	$(\sin \frac{\xi}{2})^{2\nu}$
89	-2	$\sum_{\nu=-p/2}^{\nu=p/2} a_\nu^{(r)} u_{j+\nu}$	$\frac{1}{h^r} \sum_{\nu=-p/2}^{\nu=p/2} a_\nu^{(r)} u_{j+\nu}$
92	-6	$\sum_{\nu=-p/2}^{\nu=p/2-1} \tilde{a}_\nu^{(r)} u_{j+\nu+1/2}$	$\frac{1}{h^r} \sum_{\nu=-p/2}^{\nu=p/2-1} \tilde{a}_\nu^{(r)} u_{j+\nu+1/2}$
94	2	$\frac{\partial^r u}{\partial x^r} x=x_0$	$\left(\frac{\partial^r u}{\partial x^r}\right)_{x=x_0}$
95	7	$u_x \approx$	$u_x =$
95	-10	$\sum_{\nu=-\nu_1}^{\nu=\nu_1} c_\nu^{(r)} u_{j+\nu}$	$\frac{1}{h^r} \sum_{\nu=-\nu_1}^{\nu_1} c_\nu^{(r)} u_{j+\nu}$
109	-3	$a_{i,j}$	a_{ij}
115	10	$Qv^n + Qv^{n+1}$	$Qu^n + Qu^{n+1}$
134	13	such that $h^4 \phi_j(t)$ satisfies	that satisfies
135	4	$= g'(t)$	$= g'(t) + \frac{h^2}{8} g''(t)$
137	-2	$\langle u, v \rangle$	$\langle \mathbf{u}, \mathbf{v} \rangle$
141	8	$-4 \sin^2(\xi/2)$	$-4 \sin^2(\xi/2)/h^2$
141	9	$\exp(-4 \sin^2(\xi/2)t)$	$\exp(-4 \sin^2(\xi/2)t/h^2)$

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Page	Line	Reads	Should be
141	11	$-\sin^2 \xi$	$-(\sin^2 \xi)/h^2$
141	-8	$-M + BS$	$-M - BS$
142	-4	$H^{-1}(-M + BS)$	$-H^{-1}(M + BS)$
144	2	$-\frac{1}{2}u_0v_0$	$-u_0v_0$
151	9	$u_N^2 - \tau u_N^2$	$-u_0^2 + u_N^2 - \tau u_N^2$
154	14	$-M + BS$	$-H^{-1}(M + BS)$
158	2		5th row in matrix $D_4^{(1)}$ should be shifted one step to the right
163	11	$D_4^{(1)} = H^{-1}Q$	$D_4^{(1)} = \frac{1}{h}H^{-1}Q$
163	-3		diagonal elements q_{22}, q_{33}, q_{44} should all be zero