

# Errata for

Weizhang Huang and Robert D. Russell, Adaptive Moving Mesh Methods (Springer, New York). 2011,  
XVII, 432p. 121 illus., 7 in color., Hardcover. ISBN: 978-1-4419-7915-5

Last updated on July 13, 2016

1. Page 321: (6.126):

$$M = \frac{f(\psi)}{\|\nabla\psi\|^2} \nabla\psi(\nabla\psi)^T + \nabla\psi^\perp(\nabla\psi^\perp)^T = I + \frac{f(\psi) - 1}{\|\nabla\psi\|^2} \nabla\psi(\nabla\psi)^T \quad (6.126)$$

should be

$$M = \frac{f(\psi)}{\|\nabla\psi\|^2} \nabla\psi(\nabla\psi)^T + \frac{1}{\|\nabla\psi\|^2} \nabla\psi^\perp(\nabla\psi^\perp)^T = I + \frac{f(\psi) - 1}{\|\nabla\psi\|^2} \nabla\psi(\nabla\psi)^T \quad (6.126)$$

2. Page 321: before (6.127): “ $f = \rho$ ” should be “ $f = \rho^2$ ”.
3. Page 335: Table 6.1:

Table 6.1 Values for  $p$  in (6.153) and corresponding monitor functions and functionals.

| $p$ | Monitor Function (6.147)   | Functional (6.139)                  |
|-----|--|-------------------------------------|
| -1  | $M = \frac{\tilde{M}}{\sqrt{\det(\tilde{M})}}$ with $\tilde{M} = I + \nabla u(\nabla u)^T$ | (6.156) in §6.5.2, Harmonic mapping |
| 0   | $M = I + \nabla u(\nabla u)^T$ , arclength   | (6.139)                             |
| 1   | $M = I\sqrt{1 +  \nabla u ^2}$ , scalar-matrix   | (6.132), Variable diffusion         |

It should be

Table 6.1 Values for  $p$  in (6.153) and corresponding monitor functions and functionals.

| $p$ | Monitor Function (6.148)   | Functional (6.139)                  |
|-----|--|-------------------------------------|
| -1  | $M = \frac{\tilde{M}}{\sqrt{\det(\tilde{M})}}$ with $\tilde{M} = I + \nabla u(\nabla u)^T$ | (6.156) in §6.5.2, Harmonic mapping |
| 0   | $M = (I + \nabla u(\nabla u)^T)^{1/2}$ , arclength   | (6.139)                             |
| 1   | $M = I\sqrt{1 + \ \nabla u\ ^2}$ , scalar-matrix   | (6.132), Variable diffusion         |

4. Page 335, (6.152):

$$\begin{aligned} \mathbf{v}_1 &= \nabla u / |\nabla u|, \quad \mathbf{v}_2, \dots, \mathbf{v}_d \text{ are orthogonal complements of } \mathbf{v}_1, \\ \lambda_1 &= \sqrt{1 + |\nabla u|^2}, \quad \lambda_2, \dots, \lambda_d \text{ are functions of } \lambda_1, \end{aligned} \tag{6.152}$$

should be

$$\begin{aligned} \mathbf{v}_1 &= \nabla u / \|\nabla u\|, \quad \mathbf{v}_2, \dots, \mathbf{v}_d \text{ are orthogonal complements of } \mathbf{v}_1, \\ \lambda_1 &= \sqrt{1 + \|\nabla u\|^2}, \quad \lambda_2, \dots, \lambda_d \text{ are functions of } \lambda_1, \end{aligned} \tag{6.152}$$

5. (20160713) Page 236, (5.64) and (5.65) missing exponent  $\frac{1}{d}$ .