

## ERRATA for

*Microstructural Randomness and Scaling in Mechanics of Materials* (2008)

by M. Ostoja-Starzewski

p.2, bottom line: delete  $AB$

p. 3 change Legend of Fig 1.1 to:

Three different solutions of Bertrand's problem, showing cords which are too short.

p. 7, in Eqn. (1.9) change the fourth equation to

$$F(x) = \int_{-\infty}^x f(u) du$$

p. 23, in the 2nd line from the top, replace 8 by 18.

p.43, in top line (Problem 3) replace (1.14) by (1.18)

p.61, change Eqn. (2.74) to (i.e. delete the dot in the middle)

$$\frac{\partial^2 (\Pi(\omega) + \Gamma(\omega))}{\partial a^2} \begin{cases} < 0 : & \text{unstable equilibrium} \\ = 0 : & \text{neutral equilibrium} \\ > 0 : & \text{stable equilibrium} \end{cases} \quad (1)$$

p. 69, 1st line following Eqn (2.112): replace (2.109) by (2.110)

p. 95, Eqn (3.31) should read:

$$F_i = \Phi_{ij}^{(b)} u_j \quad \text{where} \quad \Phi_{ij}^{(b)} = \alpha^{(b)} n_i^{(b)} n_j^{(b)}. \quad (2)$$

p. 127. Replace eqn. (3.136) by

$$\frac{\alpha ET_0}{K} (\dot{u}_{,x} + \tau \ddot{u}_{,x}) = \theta_{,xx} - \frac{\rho c_v}{K} (\dot{\theta} + \tau \ddot{\theta}), \quad (3)$$

p. 137, bottom line: insert 'are' in front of 'there'.

p. 153, first line of Section 4.2.3.2: change 2000 to 2001.

p. 165, line 9 from the bottom: delete (Chen, 1995)

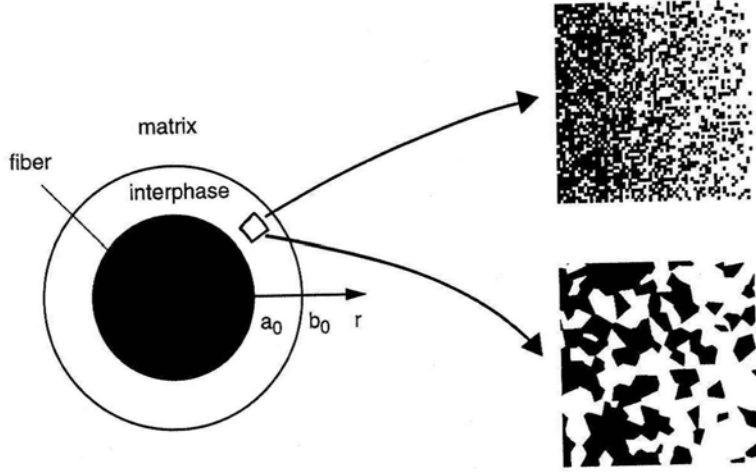


Figure 1: Fig. 11(a) Sketch of the fiber-interphase matrix system, and the mesoscale window shown in a random chessboard model and a two-phase Voronoi model.

p. 167, replace Eqn. (4.56) by

$$\begin{aligned} k \frac{\partial w}{\partial x} + k \cos 2\theta \frac{\partial \theta}{\partial x} + k \sin 2\theta \frac{\partial \theta}{\partial y} &= -\frac{2w + \sin 2\theta}{2} \frac{\partial k}{\partial x} + \frac{\cos 2\theta}{2} \frac{\partial k}{\partial y}, \\ k \frac{\partial w}{\partial y} + k \sin 2\theta \frac{\partial \theta}{\partial x} - k \cos 2\theta \frac{\partial \theta}{\partial y} &= \frac{\cos 2\theta}{2} \frac{\partial k}{\partial x} + \frac{2w - \sin 2\theta}{2} \frac{\partial k}{\partial y}. \end{aligned} \quad (4)$$

p. 167, delete  $w = -1$  in the line just above Eqn. (4.59)

p.167, the line immediately after Eqn. (4.56) is to be replaced by:

Setting  $\theta = \pi/2$  and  $k = \text{const}$ , we recover the equations of a Michell truss made of a homogeneous material

p. 264, Replace Fig. 7.11(a) by Figure 1 as shown

(I don't understand why the staff at CRC Press altered this figure, in particular, by changing the  $drd\theta$  element to a skewed rhombus...]

p. 377. In Eqn (10.103)  $c_2(d, R)$  and  $c_3(D, R)$  should be

$$c_2(d, R) = |\mathbf{R}|^{d-2} \frac{2^{2-d}}{\Gamma(d/2)} \quad c_3(D, R) = |\mathbf{R}|^{D-3} \frac{2^{3-D} \Gamma(3/2)}{\Gamma(D/2)}.$$

**Note:** For further material in support of Section 10.6, see:

M. Ostoja-Starzewski, Towards thermomechanics of fractal media, *J. Appl. Math. Phys. (ZAMP)* **58**(6), 1085-1096.

M. Ostoja-Starzewski, Towards thermoelasticity of fractal media, *J. Therm. Stresses* **30**(9-10), 889-896.

M. Ostoja-Starzewski, On turbulence in fractal porous media, *J. Appl. Math. Phys. (ZAMP)* **59**(6), 1111-1117, 2008.

M. Ostoja-Starzewski, Continuum mechanics models of fractal porous media: Integral relations and extremum principles, *J. Mech. Mater. Struct.*, in press.

M. Ostoja-Starzewski, Extremum and variational principles for elastic and inelastic media with fractal geometries, *Acta Mech.*, in press.

M. Ostoja-Starzewski and J. Li, Fractal materials, beams and fracture mechanics, *ZAMP*, in press.

p. 377. 4th line: In place of "J. Mandel (1972)" there should be "Mandel and Dantu (1963)" with this reference:

Mandel, J. and Dantu, P. (1963), Contribution à l'étude théorique et expérimentale du coefficient d'élasticité d'un milieu hétérogène mais statistiquement homogène, *Annales des Ponts et Chaussées Paris* **113**(2), 115-146.

p.436, top line: change Asimow to Asimov

p. 438, insert

Carvalho, F.C.S. & Labuz, J.F. (1996), Experiments on effective elastic modulus of two-dimensional solids with cracks and holes, *Int. J. Solids Struct.* **33**(28), 4119-4130.

p. 439, insert

de Moivre, A. (1718), *The Doctrine of Chances or a Method of Calculating the Probability of Events in Play*, Pearson, London.

p. 443, insert

Guyon, E., Roux, S., Hansen, A., Bideau, D., Troadec, J.-P. & Crapo, H. (1990), Non-local and non-linear problems in the mechanics of disordered systems: application to granular media and rigidity problems, *Rep. Prog. Phys.* **53**, 373-419.

p. 447, in Laman (1970) change *Eng. Math.* to *J. Eng. Math.*