Errata for “Magnetic Resonance Elastography - Physical Background and Medical Applications” by S. Hirsch, J. Braun, and I. Sack, Wiley-VCH.

Corrections as of July 16, 2019.

If you find any errors, the authors kindly ask you to report them to mre-book@charite.de so that they can be corrected here.

Chapter 3

- Page 46, Eq. (3.9): χ should be replaced with $1/\chi$. Also, it should be mentioned that the index *i* refers to the *i*-th Cartesian component.

Chapter 4

- Page 67, Fig. 4.3: All indices of σ_{ij} are swapped with respect to Eq. (4.9) and the definitions/explanations on the same page.
- *Page 90:* The roles of α and φ are swapped in Eqs. 4.107 and 4.108.

$$\alpha = \frac{2}{\pi} \cdot \arctan\left(\frac{\mathrm{Im}(\bar{G}^*)}{\mathrm{Re}(\bar{G}^*)}\right) \tag{4.107}$$

$$\varphi = \arctan\left(\frac{\mathrm{Im}(\bar{G}^*)}{\mathrm{Re}(\bar{G}^*)}\right) = \frac{\pi}{2} \cdot \alpha \tag{4.108}$$

- *Page 91:* in the top row of Fig. 4.7, *S'* should be *S** instead.
- Page 96: Eq. (4.137), Eq. (4.138): The functions *f* and **v** should be complex rather than real-valued, i.e., $f : \mathbb{C}^3 \to \mathbb{C}$ and $\mathbf{v} : \mathbb{C}^3 \to \mathbb{C}^3$.
- *Page 110 end of 1st paragraph:* The strain energy function introduced in Section 4.5 (not 4.2)
- *Page 115, Fig. 4.12:* The label on the right-hand side of the interface should read “medium (2)”, not “medium (1)”.

Chapter 10

- *Section 10.3.1, Page 207, 4th line:* Romano et al published the first inversion method capable of retrieving multiple model parameters from an MRE scan with a sufficient number of independent measurements [see the three references listed below]. The method is based on a variational formulation of the wave equation for determining both Lamé parameters. More details to the variational formulation are given in chapter 10.7. Similar to the work of Romano et al., a multi-parametric direct inversion

method termed AIDE (algebraic inversion of the differential equation) was introduced by Oliphant et. al [215].

- Romano, A. J., Shirron, J. J., and Bucaro, J. A. (1998). On the noninvasive determination of material parameters from a knowledge of elastic displacements theory and numerical simulation. *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, *45*(3), 751–9, doi: 10.1109/58.677725
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- Romano, A. J., Bucaro, J. A., and Ehman, R. L. (2000). The application of a material parameter extraction algorithm to MRI-based displacement measurements. *The Journal of the Acoustical Society of America*, *107*(5), doi: 10.1121/1.428931

Chapter 13

- *Section 13.1.2:* all instances of ε without subscript should be typeset as a tensor: $\boldsymbol{\varepsilon}$

References

The following references need to be corrected:

- [47]: Guo, J., Hirsch, S., Scheel, M., Braun, J., and Sack, I. (2016). Three-parameter shear wave inversion in MR elastography of incompressible transverse Isotropic media: application to in vivo lower leg muscles. *Magnetic Resonance in Medicine*, *75*(4), 1537–45. doi: 10.1002/mrm.25740
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- [314]: Kolipaka, A., Aggarwal, S. R., McGee, K. P., Anavekar, N., Manduca, A., Ehman, R. L., and Araoz, P. A. (2012). Magnetic resonance elastography as a method to estimate myocardial contractility. *Journal of Magnetic Resonance Imaging*, *36*(1), 120–7. doi: 10.1002/jmri.23616
- [353]: Romano, A. J., Guo, J., Prokscha, T., Meyer, T., Hirsch, S., Braun, J., Sack, I., and Scheel, M. (2014). In vivo waveguide elastography: effects of neurodegeneration in patients with amyotrophic lateral sclerosis. *Magnetic Resonance in Medicine*, *72*(6), 1755–61, doi: 10.1002/mrm.25067

- [585]: Sahebjavaher, R. S., Baghani, A., Honarvar, M., Sinkus, R., and Salcudean, S. E. (2012). Transperineal prostate MR elastography: Initial in vivo results. *Magnetic Resonance in Medicine*, *69*(2), 411–20. doi: 10.1002/mrm.24268