

## **Contents**

1. A review of a nice bedside reading instead of an introduction
2. Computational mechanics
3. Model of solid continuum mechanics
4. Models and their solutions
5. What is a 'large-scale' problem in computational mechanics?
6. Models and limits of their applicability
  - 6.1. Limits of computational mechanics
  - 6.2. Limits of physics
  - 6.3. Limits of computer technology
  - 6.4. Interlude – dispersive properties in FE analysis
  - 6.5. Frequency limits of continuum and of FE analysis
7. Using a model outside of its limits is a blunder
8. Example 1. Point force blunder committed analytically and by FE analysis
9. Example 2. Numerical simulation of a threshold
10. Example 3. What is a good agreement? Which solution is closer to reality?
11. Validity self assessment of FE solution
12. A simple procedure for revealing the 'true' nature of reality
13. Conclusions
14. Appendix – a crystal ball viewing
15. References
16. Curriculum vitae