

## Chapter 7

# Conclusion

We hope that this monograph inspires the reader to enter into a deeper study of Distance Geometry. Our aim was to present it as an introduction to research and teaching of the subject, where our main idea was to show that the mathematical world becomes captivating when we integrate several concepts motivated by a real and challenging problem. In exploring the area of Distance Geometry, we touched upon several different mathematical and computational fields: graph theory, geometry, algebra, combinatorics, data structures, and complexity of algorithms. We also touched upon ideas such as dimension, metric, symmetry, numerical approximation, solvability of problems and computational cost.

A fundamental topic, mainly in the applications, that was lightly considered in Chap. 6 is related to uncertainty. Chapter 6 was a different chapter from the others, because it was focused to molecular geometry which is an important field of study within Distance Geometry. We employed, implicitly and explicitly, the concepts and results from the previous chapters and also challenged the reader to solve complex problems perhaps requiring an understanding of the “subtleties” of the existent relations between mathematics and its applications.

The reader undoubtedly realizes that Distance Geometry is very rich and involves theoretical and computational challenges, as the application we selected illustrates.