(IMAGINARY) EDITOR (sceptically): Oh, not you again…

AUTHORS (bashfully): Well, you see, we’ve written a book on giant molecules…

EDITOR: What molecules?

AUTHORS: giant ones. (Getting more excited) Just listen to this bit here!

EDITOR (impatiently): Oh, no, I haven’t time to listen to it. Anyway, you’ve already published a book on them, so what’s the point?

AUTHORS: Yes, but that was for experts, while this one…

EDITOR (losing his temper): And this one is for housewives, presumably! Look, why don’t you leave the preface with me, and I’ll see what I can do.

AUTHORS: Here it is!

Preface

The very nature of the genre suggests the question that ought to be answered in the preface: For whom is this book intended?

We hope that this book may interest anyone with general curiosity about the world. And this is not just because we think too highly of ourselves! Rather, what really gives us hope is the unique position of this field. It is right at the crossroads of so very many paths of contemporary development and ardent interest. It is about all kinds of things, e.g. modern

materials (including really fascinating “smart” materials), and the famous DNA which is not just enthralling in its own right, but is already becoming a tool which is used, for example, in criminology and as a “computer in a glass of water”. Polymer physics is also about modern medicines, and lots more. To sum up, many things that people talk about every day have their roots in our science.

That is why we decided that it was time to write a clear, comprehensible story about giant molecules.

A college or university student should be able to read our book from cover to cover and get a superficial but coherent idea of the subject. A scientist, whether a physicist, a chemist, a materials engineer or a molecular biologist, may be interested to see how we approach familiar topics avoiding the complexities of scientific language.

Very frequently, sophisticated science is treated with rather ambitious mathematics. And the experience indicates that this aspect is the most scary for many students. Indeed, mathematical methods become necessary when and if a student wants to become professional and to build new inroads into science. We keep the use of mathematics at bay, our mathematics is restricted to simple algebra and never goes beyond the typical high school curriculum. At the same time, our physics is at times quite sophisticated.

Last but not least, we hope that any reader may just browse through the book and find out what is meant by “molecular architecture”, what will happen if you chop up a cauliflower, or who used to be called the queen of the world and her shadow.

Just one more thing. There is a well-known saying by Dostoevsky, “beauty will save the world”. While one can interpret these words in different ways, there is no doubt that the intellectual beauty is one of the most astonishing features of science. Indeed, why does the most effective so frequently happen to be the most beautiful as well? We do not know, but it seems to be a fact! In this book we have tried to demonstrate the beauty of polymer and biopolymer science.

For the present edition, we have modified the text in many places and have written new chapters on polymer synthesis, protein folding, polymer knots and new sections on molecular motors, semi-flexible and worm-like polymers, and several others. We have included many new figures. Overall, about 50% of the book is new.

Previous edition included the CD ROM with computer simulations of polymers. We decided not to include it in this edition, because, as it turned
out, this part was getting obsolete too fast. We are working now on the ways to disseminate the corresponding material in a more efficient form.

All color figures in the book are grouped in three places: (i) pages 81–85, (ii) pages 215–221 and (iii) pages 277–281. References to them are labeled with letter “C”, like Fig. C2.4 etc.

We have tried to make this book both interesting and useful. Whether we have succeeded or not is for our readers to decide.

The Authors

EDITOR (murmuring to himself): Well, if they are not lying, perhaps it is interesting after all... It sounds like, apart from the general reader, the book may interest people in (counting on his fingers) the APS, ACS, MRS, BPS... I think we ought to publish it.