

Preface

About 40 years after its discovery, surface-enhanced Raman scattering (SERS) spectroscopy has become a fully grown spectroscopic technique and the number of applications in the chemical, material, and particularly in life sciences has been rapidly expanding. Several monographs covering SERS theory and applications are available, but a compact monograph written by one author and focused on bio-related SERS applications is missing. The motivation to compile this book was to provide the best possible overview of the bioanalytical, biomolecular and medical applications of SERS. Please regard this book primarily as a review of selected bio-related SERS applications reported during the past two decades. Of course, it was impossible to include all applications from the extensive SERS literature in one book. I must apologize to all colleagues whose work is not described or cited here. I hope this book will be useful for students and newcomers with only little background in SERS spectroscopy as well as for experts who just need a quick overview of SERS applications with keyword “bio”.

As an M.Sc. student at Faculty of Mathematics and Physics, Charles University in Prague, I chose SERS spectroscopy as my research topic with very little knowledge about it and even less knowledge about how complicated it could be. During the twenty plus years that I have been working on SERS spectroscopy I have discovered how mysterious it is and at the same time what a fascinating research field it is. When I was researching material for this book, the most exciting thing for me was the appreciation I got from seeing the great amount of progress that has been made in SERS spectroscopy over the past two decades.

I would like to thank two special persons/teachers: Prof. Blanka Vlčková from the Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University in Prague, a pioneer of SERS in Czech Republic and Prof. Josef Štěpánek from the Institute of Physics, Faculty of Mathematics and Physics, Charles University in Prague. I was infected with their enthusiasm for scientific work and without them I would never have come to the position where I now find myself.

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