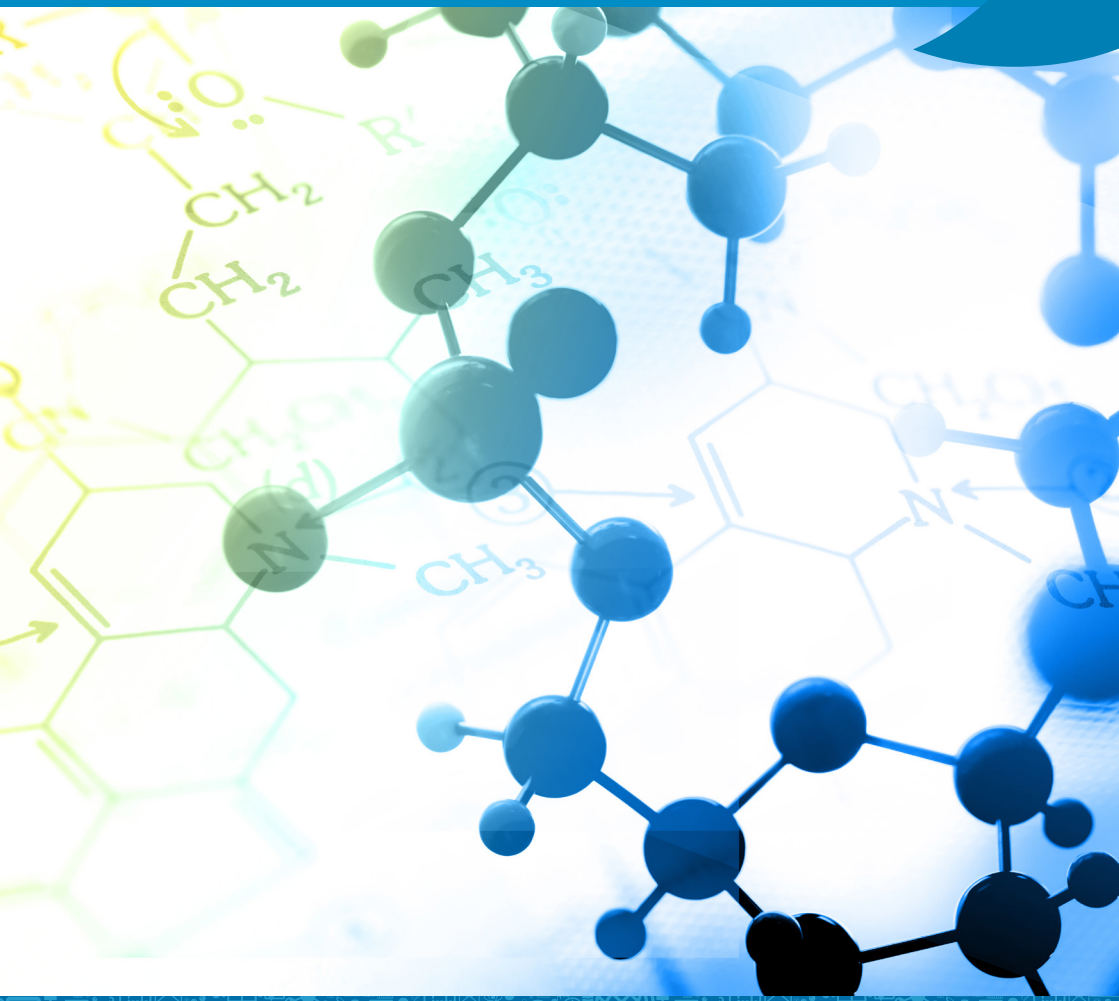
INTRODUCTION TO MOLECULAR MODELING IN CHEMISTRY EDUCATION

Johannes Pernaa, Maija Aksela & Shenelle Pearl Ghulam



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FOREWORD

Welcome to learn molecular modeling in the context of chemistry instruction.

The goal of this book is to offer theoretical insights and hands-on activities so that chemistry teachers can implement molecular modeling in teaching.

This book includes 22 hands-on modeling exercises. They can be performed using the edumol.fi web application, which is a JSmol-JSME-based molecular modeling and visualization environment.

Users can do the exercises via any device that has a modern web browser and access to the internet. It is vital that all exercises can be done via minimal resources. Our research group has spent over a decade working with commercial software. Our experience is that schools don't have the funds to purchase equipment and software, let alone update them every three years. Free open source solutions are the only way to support the integration of molecular modeling into schools.

In this book, the level of the theory and the exercises are designed to support the work of primary, upper-secondary and high school chemistry teachers all over the world. Molecular modeling is a crucial part of chemistry instruction and chemistry educational research.

We wish you a great modeling experience with our book.
Johannes, Maija & Shenelle
Helsinki, March 2017

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Welcome to learn molecular modeling in chemistry education

Molecular modeling is an essential tool for chemistry teachers. It can be used for anything from student-centred activities to teacher-oriented visualizations and evaluation.

This book offers theoretical insights and hands-on modeling activities. The goal is to learn how to implement molecular modeling in chemistry teaching.

The exercises are performed using Edumol.fi web application, which is a free JSmol-JSME-based molecular modeling and visualization service.

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