Michal Ptáček

michal.ptacek@matfyz.cuni.cz
∗ 1997 in Pilsen, Czechia

Education

since 2023 **PhD in Biophysics, Chemical and Macromolecular Physics**
Faculty of Mathematics and Physics, Charles University, Prague, Czechia
Topic: Nonlinear optical spectroscopy of electron-phonon coupling in small molecules
Supervisor: Tomáš Mančal

2020–2023 **MSc in Theoretical Biophysics and Chemical Physics** transcript
Faculty of Mathematics and Physics, Charles University, Prague, Czechia
Thesis: Theory of ultrafast relaxation and internal conversion in chlorophyll molecules
Supervisor: Tomáš Mančal

2017–2020 **BSc in Molecular Biology and Biochemistry of Organisms** transcript
Faculty of Science, Charles University, Prague, Czechia
Thesis: Excitation energy transfer in photosynthetic reaction centres
Supervisor: Tomáš Mančal

IT Skills & Programming Experience

- Programming: Python (development of packages and apps with GUI); TEX (typesetting, customisation of packages and BibTEX styles); Bash; Astro framework, HTML, JavaScript, TypeScript (web development, scripting); Visual Basic (MS Excel macros); R (statistics); beginner with C++, C#
- Computer graphics: Blender, Inkscape, DaVinci Resolve, Gimp, CAD, etc.

Language Skills

	listening	reading	speaking	writing
Czech		native language		
English	C1	C1	C1	C1
French	A2	B1	A1	A2
German	A1	A1	A1	A1

Certificates

- **Cambridge C1 Advanced (CAE)**
grade C, overall score of 187
exam date: October 26, 2019

Grants, Scholarships & Awards

2026 National Science Foundation & University of Texas at Austin
a scholarship to attend the Texas Quantum Winter School in Wimberley, TX, USA

2025 Grant Agency of Charles University
grant No. 432225 – Nonadiabatic Energy Dissipation in Large Molecular Complexes: Theory and Spectral Signatures

Work Experience

since 2022 Charles University;
Researcher at the Molecular Open Quantum Systems group of Dr. T. Mančal
Programmer in Python, editor of study materials (especially educational videos)

since 2017 Charles University (since 2021), Czech University of Life Sciences (2017–2021);
Member of the Biology Olympiad organising team for the Czech Republic (international competition for secondary school students)
Chief typesetter and graphics editor, author of educational and examination texts

Selected Projects & Academic Texts

MichalPt

2025 Web development: research group website (mama-group.cz)
A development of a new website for our research group. Created using Astro JavaScript framework.

2023 Overleaf–ReadCube Papers integration
A TamperMonkey script for integrating ReadCube Papers citation software support into Overleaf (online TEX editor) UI.

2023 Python package `track_vis`
Easy-to-use set of tools for graphical processing of GPS data from e.g. sport trackers, supporting custom maps via MapBox API.

2022 Exam project: Hermitian and non-Hermitian theory of scattering and resonances
Derivation, implementation of equations from scratch, and benchmarking using Python language and various accelerators.

2022 Exam project: CI method for solving He atom using iterative approach
Derivation and implementation of equations from scratch using Python language.

2022 Exam project: *Ab initio* molecular dynamics
Implementation of equations using Python language and various quantum chemical libraries.

2021 Python package `colour_of_molecule`
A tool-set for analysing excited states' calculations from quantum chemical software.

Interest & Hobbies

- Computers and technology, programming
- Art and architecture, photography, graphic arts & printmaking, music
- Botany and algology

References

Dr Tomáš Mančal, *Associate Professor*
e-mail: `tomas.mancal@matfyz.cuni.cz`
personal web: `mama-group.cz/mancal`
Faculty of Mathematics and Physics, Charles University
Ke Karlovu 5, 121 16 Prague 2, Czechia

Prof Jaroslav Burda, *Professor*
e-mail: `jaroslav.burda@matfyz.cuni.cz`
personal web: `physics.mff.cuni.cz/kchfo/burda/`
Faculty of Mathematics and Physics, Charles University
Ke Karlovu 3, 121 16 Prague 2, Czechia

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