

Curriculum vitae

I. PERSONAL DATA

Name: **Lyuben Krasimirov Borislavov**
Date of birth: December 16, 1997
Place of birth: Sofia, Bulgaria
Marital status: Single
Address: University of Sofia, Faculty of Chemistry and Pharmacy,
1 James Bourchier blvd, 1164 Sofia.
lubenkr@abv.bg
Languages: English, German
Computer skills: OS: Windows, LINUX
Languages: Python
Software: Gaussian, Hyperchem, Origin, MS Office

II. EDUCATION:

2016-Present University of Sofia "St. Kliment Ohridski"
B.Sc. in Chemistry
Average academic grades 6.00/6.00 (100% = A*)

2011-2016 National Lyceum of Mathematics and Natural Sciences,
Sofia,
Major in Chemistry
Average academic grades: 5.95/6.00 (99% = A*)

III. INTERNATIONAL AND NATIONAL COMPETITIONS AND RANKING:

2018 National Student Olympiad in Computer Mathematics –
CompMath-2018 (<http://www.compmath.eu/2018/>) – Bronze
Medal

2017 National Student Olympiad in Computer Mathematics
CompMath-2017 (<http://www.compmath.eu/2017/>) – Silver
Medal

2016 International Chemistry Olympiad, Tbilisi, Georgia
(<http://www.icho2016.chemistry.ge/medals.php>) – Bronze
Medal

2016 International Mendeleev Chemistry Olympiad, Moscow
(<http://www.chem.msu.su/rus/olimpiad/olimp2016/welcome.html>) – Russian Federation, Bronze Medal

2016 National Chemistry Olympiad, First Place

2016	National Chemistry Competition for High School Students
2015	International Chemistry Olympiad, Baku, Azerbaijan (http://icho2015.msu.az/results.php) – Bronze Medal
2015	National Chemistry Olympiad, Sixth Place
2015	National Chemistry Competition for High School Students, Third Place
2014	European Union Science Olympiad (http://euso.eu/) – Silver Medal
2014	National Chemistry Competition for High School Students
2013	National Chemistry Olympiad, Fourth Place

IV. RESEARCH ACTIVITY:

2018-Present	Research Student – Laboratory of Quantum and Computational Chemistry, Department of Physical Chemistry, University of Sofia <i>Project:</i> Insights into the mechanism of radical-scavenging activity of mono-, di-, and tri-hydroxycinnamic acids <i>Supervisor:</i> Prof. Dr. A. Tadjer
2016-Present	Research Student – Laboratory of Organoelement Chemistry, Department of Organic Chemistry and Pharmacognosy, University of Sofia <i>Project:</i> Synthesis and catalytic activity (in cross-coupling reactions) of transition metal N-heterocyclic carbene complexes <i>Supervisor:</i> Assoc. Prof. Peter Petrov
2018	Internship (three months) at the Computational Chemistry Lab of the Institute of General and Inorganic Chemistry at the Bulgarian Academy of Sciences <i>Project:</i> Molecular modeling of Pd/N-heterocyclic carbene complex and its precursor <i>Supervisor:</i> Dr. Tsvetan Zahariev
2018	Course project - <i>Molecular design</i> – <i>In silico</i> study of the mechanism of antioxidative activity of phenolic acids. <i>Supervisor:</i> Assoc. Prof. Galia Majarova
2017	Course project – <i>Inorganic chemistry</i> – Synthesis of hypophosphorous acid <i>Supervisor:</i> Assoc. Prof. Dr. L. Lyutov

V. TEACHING EXPERIENCE

2017-Present	Seminars for training of chemistry majors participating in national and international chemistry olympiads at the National Lyceum of Mathematics and Science
10-26 October 2017	Demonstrator in Baylab (Bayer) Project Bulgaria

**VI. FELLOWSHIPS,
AWARDS AND GRANTS
FOR PARTICIPATION
IN SCIENTIFIC
FORUMS**

1. 2016-Present: Fellowship *Eureka* – Foundation for support of gifted students in Natural Sciences (<http://www.evrika.org/>), Program ‘Talents’
2. November 25, 2018 – yearly Award of the Rector of the University of Sofia for Educational Achievements
3. November 25, 2017 – yearly Award of the Rector of the University of Sofia for Outstanding Student Research
4. Grant for participation in the 2-nd International Conference on Bio-antioxidants, September 07-10, 2018, Varna, Bulgaria (poster) *Mechanisms of Radical-Scavenging Activity of Hydroxycinnamic Acids*,
Lyuben K. Borislavov, Zhivko A. Velkov, Alia Tadjer, Award for Best Poster (3-rd Place)
5. 23-rd International Workshop for Quantum Systems in Chemistry, Physics and Biology (QSCP XXIII), September 23-29, 2018, Mopani Camp, Kruger Park, South Africa, (poster) *Reactivity of hydroxycinnamic acids*,
Lyuben Borislavov, Zhivko Velkov, Alia Tadjer
6. Scientific Session dedicated to the 130th anniversary of the University of Sofia, November 23, 2018, Sofia (poster) *Reactivity of hydroxycinnamic acids*,
Lyuben Borislavov, Zhivko Velkov, Alia Tadjer

**VII. MISCELLANEOUS
INTERESTS**

1. Sports: swimming, running, football, hiking
2. Arts: classical music, books, drama

FOR REFERENCE

1. Prof. A. Tadjer – University of Sofia, Faculty of Chemistry and Pharmacy, Sofia, Bulgaria
tadjer@chem.uni-sofia.bg
2. Prof. T. Dudev – University of Sofia, Faculty of Chemistry and Pharmacy, Sofia, Bulgaria
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January 27, 2019

LETTER OF RECOMMENDATION

for

Lyuben Borislavov,


B. Sc. student at the University of Sofia, Bulgaria

Lyuben Borislavov is the youngest member of the Laboratory of Quantum and Computational Chemistry at Sofia University. He has been part of the Lab since the spring of 2018 when as a sophomore he started working on one of our projects. However, he has been involved in research activity even before he enrolled in the University. He graduated from the National Lyceum for Natural Sciences and had excellent training in Chemistry which helped him to obtain medals and honors in several international Chemistry Olympiads and competitions. In the course of preparation for these contests he got exceptionally interested in organometallic compounds, and immediately joined a team synthesizing such substances. In his second academic year he had his first experience in Computational Chemistry during the seminars in *Structure of Matter* (a basic course of *Quantum Chemistry*) where he performed brilliantly, earning the highest grade in the class. This involvement kindled his interest towards molecular modelling and he took the elective course in *Molecular Design* in the fourth semester. The assignment he got in this course was meant to be simple and encompassed a modest set of molecules for which several thermodynamic characteristics had to be computed and compared to the end of establishing some structure-activity relationship. Lyuben extended the assignment and converted it into a serious scientific study. He calculated all the mono-, di-, and tri-

hydroxyl derivatives of cinnamic acid, with account of all possible geometries, their intermediates in the process of hydrogen atom abstraction (in one piece or as an electron and a proton in either succession) both in the gas phase and in implicit aqueous solvent. This allowed him to draw conclusions about the most favorable mechanism of radical-scavenging (and thereof the antioxidant) potential of these isomers. The results were presented at one local and two international forums, attracted the interest of the audience and he received a best-poster-award as a recognition for his outstanding presentation. Two manuscripts analyzing his results – one on the structure and one on the mechanisms – are currently in preparation.

In addition to his research activity, Lyuben maintains straight-A grades, spent some time as an intern in a lab specialized in computations on organometallic complexes, gets awards for academic excellence and extracurricular activities, studies foreign languages, excels in programming, practices sports and is interested in arts. He has the capacity to absorb complex information quickly and to analyze it critically. He is highly motivated and has a great potential for a successful academic career.

Based on the above, I eagerly recommend him for the 2019 Summer Undergraduate Theoretical Chemistry Research Fellowship Program of the University of Minnesota and I believe that the Selection Committee will appraise properly his merits.

Signature: 

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28 January 2019

Re: **Mr. Lyuben Borislavov**

It is a pleasure to write a letter of support for Lyuben Borislavov who is applying for participation in the 2019 Summer Undergraduate Theoretical Chemistry Research Fellowship Program of the University of Minnesota. When I learned about this program, I thought that this is a perfect educational/training opportunity for this young researcher, since, as a long-standing collaborator with Prof. Carmay Lim from Academia Sinica in Taipei, who obtained her PhD degree under the supervision of Prof. D. Truhlar, I am well acquainted with the outstanding achievements of this academic center in the realm of Theoretical Chemistry. Therefore, I encouraged Mr. Borislavov to apply.

I met the student at the 2018 Scientific Session of the Faculty of Chemistry and Pharmacy dedicated to the 130 anniversary of Sofia University, where he was presenting a poster. He was the youngest participant. The rest of the presenters were a few seniors and mostly PhD students and postdocs. The title of Mr. Borislavov poster was appealing to me as it was in the scope of my research interests and expertise, so I went to talk to him. I was pleasantly surprised to find a very knowledgeable and enthusiastic young man, who spoke about his study in a professional way, who could substantiate with confidence the choice of models and methods and understood very well the chemistry behind the calculations. I have to admit that I was truly impressed by his presentation, the poise with which he explained every detail of his results, and the connections he was making with other properties of the studied molecules. On the other hand, I was pleased to hear his comments on the synthetic availability of the compounds, demonstrating his excellent overall schooling. The answers he gave to my questions revealed a quick mind and keen interest in Computational and Organic Chemistry.

I believe that the Summer Program for pre-seniors at UM is meant exactly for students like him, who have the drive and competence to succeed in their scientific endeavors, and I strongly recommend him for consideration by the Selection Committee.

Respectfully submitted,

Prof. Todor Dudev