

CURRICULUM VITAE

Natalya A. VODOLAZKAYA

(**Nataliia VODOLAZKA** translation from Ukrainian)

PhD in Physical Chemistry (2002)

Doctor of Science (2012)

Full Professor in the Department of Physical Chemistry

Date and place of birth:

25 December, 1975 Tapa, Estonia



Professional address: Chemical Faculty, Department of Physical Chemistry,
V.N. Karazin Kharkiv National University,
4, Svoboda sq., Kharkiv, 61022,
UKRAINE
Phone: +380 57 707 54 45
+380 050 904 70 25

E-mail: vodolazkaya@karazin.ua

Academic degrees and titles

- | | |
|-------------------------|---|
| 1998 | Master of Science in Chemistry
Chemical Faculty, Kharkov State University, UKRAINE. Diploma with Honor |
| 2002 | PhD in Physical Chemistry or Scientific Degree of Candidate of Chemical Sciences in Speciality – Physical Chemistry |
| 2006 | Master of Science in Psychology (second higher education).
Psychology Faculty, V.N. Karazin Kharkov National University, UKRAINE. Diploma with Honor |
| 2000 – 2007 | Lecturer in Physical and Colloidal Chemistry and Senior Staff Scientist, V.N. Karazin Kharkov National University |
| 2005 – 2009 | Assistant Professor in Physical Chemistry |
| 2008 | Invited Lecturer at the University of Nancy 1 – Henri Poincare, Nancy, FRANCE |
| 2009 | Guest Researcher at the LCPME of the University of Nancy 1 – Henri Poincare, Nancy, FRANCE |
| 20 October 2011 | Presentation of the Thesis for the Doctor of Science Degree: Speciality – Physical Chemistry |
| 17 February 2012 | It was given Doctor of Science Degree in Speciality – Physical Chemistry |
| 2013 | Guest Researcher at the LCPME of the University of Lorraine (Henri Poincare, Nancy 1), Nancy, FRANCE (Grant of Ministry of Education and Science, Youth and Sport of Ukraine) |
| 2017 | Guest Researcher at the LCPME of the University of Lorraine, Nancy, FRANCE |
| 2018 | Guest Researcher, Aston University, Birmingham, UK (Erasmus +) |

2019	Guest Researcher, Aston University, Birmingham, UK (Erasmus +)
2021	Guest Researcher at the LCPME of the University of Lorraine, Nancy, FRANCE
2022	Guest Researcher, Aston University, Birmingham, UK (Erasmus +)
Current	Full Professor in the Department of Physical Chemistry

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Some of Publications (2019 – 2024)

2024	Anna Laguta, Natalya Vodolazkaya , Dmitry Nerukh The Spectrophotometric Determination of the Patchy Surface Potential of Viruses Using pH-Sensitive Molecular Probes // J. Chem. Educ. – 2024. – Vol. 101. No. 3 – P. 1190-1197. doi.org/10.1021/acs.jchemed.3c00948
2023	Vodolazkaya N. , Laguta A., Farafonov V., Nikolskaya M., Balklava Z., Khayat R., Stich M., Mchedlov-Petrosyan N., Nerukh D. Influence of various colloidal surfactants on the stability of MS2 bacteriophage suspension. The charge distribution on the PCV2 virus surface // Journal of Molecular Liquids. – 2023. – Vol. 387. –P. 122644. DOI: 10.1016/j.molliq.2023.122644
2022	Vodolazkaya N. , Nikolskaya M., Laguta A., Farafonov V., Balklava Z., Stich M., Mchedlov-Petrosyan N., Nerukh D. Estimation of nanoparticle's surface electrostatic potential in solution using acid-base molecular probes III: Experimental hydrophobicity/hydrophilicity and charge distribution of MS2 virus surface // The Journal of Physical Chemistry B. – 2022. – Vol. 126 (41). – P. 8166– 8176. DOI: 10.1021/acs.jpcc.2c04491
	Cheipesh T.A., Mchedlov–Petrosyan N.O., Bogdanova L.N., Kharchenko D.V., Roshal A.D., Vodolazkaya N.A. , Taranets Yu.V., Shekhovtsov S.V., Rodik R.V., Kalchenko V.I. Aggregates of cationic calix[4]arenes in aqueous solution as media for governing protolytic equilibrium, fluorescence, and kinetics // Journal of Molecular Liquids. – 2022. – Vol. 366. – P. 119940–119951. DOI: 10.1016/j.molliq.2022.119940
	Obukhova O. M., Mchedlov-Petrosyan N. O., Vodolazkaya N. A. , Patsenker L. D., Doroshenko A. O. Stability of Rhodamine Lactone Cycle in Solutions: Chain–Ring Tautomerism, Acid–Base Equilibria Interaction with Lewis Acids, and Fluorescence // Colorants. – 2022. – Vol. 1. – P. 58–90. DOI: 10.3390/colorants1010006
2021	Mchedlov-Petrosyan N. O. and Vodolazkaya N. A. Protolytic equilibria in organized solutions: Ionization and tautomerism of fluorescein dyes and related indicators in cetyltrimethylammonium chloride micellar solutions at high ionic strength of the bulk phase // <i>Liquids</i> . – 2021. – Vol. 1. – P. 1–24. DOI: 10.3390/liquids1010001
2020	Vus K., Tarabara U., Balklava Z., Nerukh D., Stich M., Laguta A., Vodolazkaya N. , Mchedlov-Petrosyan N., Farafonov V., Kriklya N., Gorbenko G., Trusova V., Zhytniakivska O., Kurutos A., Gadjev N., Deligeorgiev T. Association of novel monomethine cyanine dyes with bacteriophage MS2: A fluorescence study // <i>J. of Molecular Liquids</i> . – 2020. – Vol. 302. – P. – 112569. DOI: 10.1016/j.molliq.2020.112569
2019	Nasir T., Vodolazkaya N.A. , Herzog G., Walcarius A. Critical effect of film

thickness on preconcentration electroanalysis with oriented mesoporous silica modified electrodes // *Electroanalysis*. – 2019. – Vol. 31. – P. – 202–207. DOI: 10.1002/elan.201800533

Monograph

N. A. Vodolazkaya, N. O. Mchedlov-Petrosyan. *Acid-Base Equilibria of Indicator Dyes in Organized Solutions*. – Published by V. N. Karazin Kharkov National University Press, Kharkiv, 2014. – 460 p.

Research Interests

Protolytic equilibria in lyophilic nano-sized dispersions (in micellar solutions of surfactants; in direct and reversed microemulsions; in the suspensions of liposomes; in the suspension of silica nanoparticles modified with cationic surfactant; in aqueous solutions of calixarene and of cationic dendrimers; in Langmuir–Blodgett films).

Differentiating influence of the organized media and salt effects.

Protolytic equilibria and solvation of fluorescein dyes and of solvatochromic Reichardt's indicators in ultramicroheterogeneous dispersions.

Synthesis and physico-chemical characterization of ordered mesoporous (organo)silica materials.

Managed the basic techniques of experimental physical chemistry

√ UV-VIS electronic spectroscopy in lyophilic ultramicroheterogeneous systems;
√ DLS;
√ spectrofluorimetry;
√ potentiometry;
√ IR spectroscopy;
√ cyclic voltammetry;
√ electrochemically assisted self-assembly (EASA) method for preparation of organically modified mesoporous silica thin films.

Language

Russian, Ukrainian (Native)
English (Level B2 Upper Intermediate)
French (Level A2 Pre-Intermediate)

January, 2025