

## Curriculum Vitae

<b>First name(s) / Surname(s)</b>	<b>MARINELA PANAYOTOVA</b>
Address (business)	University of Mining and Geology, "St. Ivan Rilski" "Student Town", Boyan Kamenov Str. No1, 1700 Sofia, Bulgaria
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<b>Positions (at moment)</b>	
Dates	Since 2011 (Head of the department since 2012) - until now
Occupation or position held	Professor in Mineral Processing and Recycling, Department of Chemistry, Head of the department
Name and address of employer	University of Mining and Geology, "St. Ivan Rilski"
Dates	2009 -2016
Occupation or position held	Director of the Kardzhali branch of the University of Mining and Geology
Name and address of employer	University of Mining and Geology, "St. Ivan Rilski"
Dates	2004-2009
Occupation or position held	Vice-Dean of the Mining Technology Faculty
Name and address of employer	University of Mining and Geology, "St. Ivan Rilski"
Dates	2001 – 2011
Occupation or position held	Associated Professor (Dozent) in Physical Chemistry, awarded by the Bulgarian Higher Testimonial Commission (BHTC), Department of Chemistry
Name and address of employer	University of Mining and Geology, "St. Ivan Rilski"
Dates	1990 – 2001
Occupation or position held	Assistant Professor, Dept. of Chemistry
Name and address of employer	University of Mining and Geology, "St. Ivan Rilski"
Dates	1984 - 1985
Occupation or position held	Chemist - "Laboratory of Kinetics and Catalysis"
Name and address of employer	Dept. of Inorganic Chemistry, Chemical Faculty of Sofia University
<b>Education and training</b>	
Dates	1985-1989
Title of qualification awarded	Ph.D. in Physical Chemistry (Corrosion control), awarded by the BHTC and Bulgarian Academy of Sciences
Educational institution	Mining Geological Institute (MGI) - Sofia, BAS
Dates	1979 - 1984
Title of qualification awarded	M.Sc. Chemistry (Inorganic and Analytical), gold medal.
Educational institution	Chemical Faculty of Sofia University "St. Kl. Ohridski"
Dates	1993 – 1994

Title of qualification awarded	Post-Graduate specialization "Environmental Technology and Management", TEMPUS (JEP 1918-92) - Ddiploma, equivalent to a British MSc course by examination and submission of diploma project									
Educational institution	TU – Sofia, BG; UMG – Sofia, BG; University of Sunderland – UK; TEMPUS (JEP 1918-92)									
Mother tongue(s)	Bulgarian									
Other language(s)	Russian, English									
Self-assessment	Understanding				Speaking				Writing	
<i>European level (*)</i>	Listening		Reading		Spoken interaction		Listening		Reading	
<b>English</b>	C2	Fluently	C2	Fluently	C2	Fluently	C2	Fluently	C2	Fluently
<b>Russian</b>	C1	Fluently	C1	Fluently	C1	Fluently	C1	Fluently	C1	Fluently
<b>French</b>	A1	Basic	A2	Basic	A1	Basic	A1	Basic	A1	Basic

(\*)[Common European Framework of Reference for Languages](#)

### Professional information & applications

Professional and Research interests (key words)	Processing of minerals, raw materials (ores, concentrates, liquid and solid waste) – hydrometallurgical, flotation, physicochemical, chemical and electrochemical methods for recycling and processing; Environment protection - processes of mobilization and immobilization of water, soil and air pollutants; Technologies for wastewater and gases purification; EIA; Chemistry of RES; Corrosion and corrosion protection of metals and concrete.
Patents and Inventions	18 totally issued (patents and utility models)
Membership of professional and trade organization	Union of Scientists in Bulgaria Union of Chemists in Bulgaria Bulgarian Electrochemical Society Bulgarian Hydrogen Society International Association for Sustainable Development Society of Mining Professors
Publications	Totally 18 books (monographs, textbooks, teaching aids); 5 of them - in English Totally: 7 invited chapters of monographs by an international team - in English Totally over 160 publications - Appendix 1
Projects	Totally 43 projects and 8 EIA
Participation in scientific sessions, conferences and congresses (for last 5 year)	IMPC 2018, XXIX International Mineral Processing Congress, Moscow, Russia, 15-21 September XVII Balkan Mineral Processing Congress, 2017, Antalya, Turkey IMC 2016, XXVIII International Mineral Processing Congress, Quebec City, Canada, 11-15 September INTERNATIONAL ENERGY RAW MATERIALS AND ENERGY SUMMIT (INERMA), Istanbul, Turkey 2015, 5-7 October IMPC 2014, XXVII International Mineral Processing Congress, Chile, 20-24 October, 2014 IMPC 2012, XXVI International Mineral Processing Congress, New Delhi, India, 24-28 September, 2012. "Science and education, tradition and future", Int. Conference, Kardjali 2-3.10. 2014 International Scientific Session of the UMG "St. Ivan Rilski" - 2012-2016
Other professional skills	License № 429/1996 and certificates 429/2001 and 429/2006 of expert professional competence for assessing the environmental impact in the areas of surface and groundwater Member of the EGRC, ECE, UN - 5-th, 6-th and 8-th sessions Editorial board member - magazine "Sustainable Development"

#### Awards:

Inventor of the year - category Chemistry and Environment - 2014

2 gold medals from the East West Euro Intellect Technical Fair and International Exhibition - 2003

## Appendix 1

### PUBLICATIONS For the period 2014-2018

#### MONOGRAPHS, TEXTBOOKS

1. Marinela Panayotova, Vladko Panayotov, Critical & important Raw materials for high-tech applications (in brief), ISBN 978-954-353-247-6, Publishing House "St. Ivan Rilski", Sofia - 2014, 88 pp.
2. Vladko Panayotov, Fathi Habashi, Marinela Panayotova, Chemical Technology of Ore Processing, Publishing House of the University of Mining and Geology "St. Ivan Rilski" – Sofia, Bulgaria, 2015 (ISBN 978-954-353-270-4).
3. Marinela Panayotova, Vladko Panayotov, Chemical Sources of Power (materials and electrochemical processes), Publishing House "St. Ivan Rilski", Sofia, 2016, 150 pp., in Bulgarian.
4. Vladko Panayotov, Marinela Panayotova, Minerals beneficiation through flotation and chemical technologies, Publishing House "St. Ivan Rilski", Sofia, 2018, 266 pp., in Bulgarian.

#### INVITED CHAPTERS OF MONOGRAPHS BY AN INTERNATIONAL TEAMS

1. Marinela Panayotova, Mining and mineral processing as heavy metals pollution source, Chapter 3, In: "Heavy Metals: Sources, Toxicity and Remediation Techniques", Ed. Deepak Pathania, NOVA SCIENCE PUBLISHERS, NY 11788-3619, USA, 2016, ISBN: 978-1-63484-766-7
2. Panayotova, M., V. Panayotov, Biopolymers in Devices for Environmental Monitoring and Protection, Chapter 1 in: Modified Biopolymers Challenges and Opportunities, D. Pathania, G. Sharma and A. Kumar, Eds. Nova Science Publishers Inc., New York, 2017, p.1-48.
3. Panayotova, M., V. Panayotov, Hydrometallurgy: The Basics and Applications to Extract Some Precious, Base, and REE Metals Chapter 1. in Hydrometallurgy: Applications, Technology and Research, Ed. Rodrigo Cabrera, Nova Science Publishers Inc., New York, 2017, p.1-91.
4. Panayotova, M., Metals Recycling, Chapter in Kirk-Othmer Encyclopedia of Chemical Technology, Published Online: 14 SEP 2017 John Wiley & Sons, Inc.
5. Marinela Panayotova, Vladko Panayotov, Graphene Oxide - An Outstanding Material for Advanced Batteries, Chapter ID: \_52804\_ in A. K.Mishra and D. Pathania, Eds." Graphene Oxide: Advances in Research and Applications," Nova Science Publishers, Inc., Book ID: \_12538\_ Nova Science Publishers Inc., New York, 2018, pp. 255-293.

#### PUBLICATIONS

1. M. Panayotova, V. Panayotov, Tellurium, selenium and sustainable use of solar energy, Sustainable development, No 15, 2014, ISSN 1314-4138, 22-29.
2. M. Panayotova, V. Panayotov, Rhenium and the low-carbon economy, Sustainable development, No 15, 2014, ISSN 1314-4138, 34-39.
3. M. Panayotova, V. Panayotov, E. Sokolova, Lithium and transition to a sustainable energy future, Sustainable development, No19 2014, ISSN 1314-4138, 4-10
4. M. Panayotova, Removal of citric acid from wastewater by natural zeolite, Sustainable development, No 20, ISSN 1314-4138, 84-88, 2014.
5. M. Panayotova, V. Panayotov, Cobalt and Transition to a Sustainable Energy Future, Annual Univ. Mining and Geology 2014, Vol. 57, Part II, 154-160
6. M. Panayotova, Removal of TSS and COD from mineral processing wastewater by flocculation process, Annual Univ. Mining and Geology, 2014, Vol. 57, Part II, 178-181.
7. M. Panayotova, V. Panayotov, Nutrients removal from wastewater using natural sorbents – a comparative analysis, in Proceedings of "Science and education, tradition and future", Int. Conference, PKP Print LTd, ISSN 1314-3425, Kardjali 2-3.10. 2014, 571-576.
8. M. Panayotova, V. Panayotov, Flocculation for improving the processing of slag from lead-zinc metallurgy, Proc. XXVI International Mineral Processing Congress (IMPC 2014), 20-24 Oct, 2014, Chile, Ch13, 60-66.
9. M. Panayotova, Nutrients removal from wastewater using modified zeolite, Sustainable development, v. 1(22), 2015, 99-104.
10. M. Panayotova, V. Panayotov, Technogenic waste as a source of metals for sustainable development, Sustainable development, v. 2(23) 2015, 41-47.
11. M. Panayotova, V. Panayotov, Emilia Sokolova, Non-ferrous metals waste as metals' resource. Part 1 - availability, chemistry and mineralogy v. 3(24) 2015, 85-93.
12. M. Panayotova, V. Panayotov, Non-ferrous metals waste as metals' resource. Part 2 - technologies for metals Extraction, Sustainable development, v. 4 (25), 2015, 95-103.
13. M. Panayotova, V. Panayotov, PEM fuel cells for green transport-are there any problems? Sustainable development, v. 6 (27), 2015, 65-73
14. M. Panayotova, V. Panayotov, Waste from ferrous metallurgy as resource, Annual Univ. Mining and Geology", 58, Part II, 2015, 150-155.
15. M. Panayotova, Possible use of metal-modified clinoptilolite for chromium removal from wastewater, Annual Univ. Mining and Geology", 58, Part II, 2015, 163-167.
16. M. Panayotova, V. Panayotov, PEM Fuel cells for green transport - are there any problems? Sustainable development, v. 6 (27), 65-73.
17. M. Panayotova, V. Panayotov, Sustainable development and known and unknown beryllium, Sustainable development, v. 1/2016, 67-75.
18. R. Villas-Bôas, M. Panayotova, V. Panayotov, Application of the UNFC-2009 to metals' production waste. IMPC 2016: XXVIII International Mineral Processing Congress Proceedings - ISBN: 978-1-926872-29-2

19. M. Panayotova, V. Panayotov, Removal of oxyanions from metals' extraction wastewater by modified zeolite. 2016: XXVIII International Mineral Processing Congress Proceedings - ISBN: 978-1-926872-29-2
20. M. Panayotova, V. Panayotov, An approach to assess and control the flotation of minerals-semiconductors IMPC 2016: XXVIII International Mineral Processing Congress Proceedings - ISBN: 978-1-926872-29-2
21. M. Panayotova, G. Gicheva, Cyanides concentration and spectrophotometric determination, meeting the tightened requirements for surface water monitoring Annual Univ. Mining and Geology", 59, Part II, 2016, 99-104.
22. M. Panayotova, N. Mintcheva, G. Gicheva, S. Bratkova, L. Djerahov, "Oilfield produced water – chemical composition and assessment of its impact on the environment", Annual of the University of mining and geology, 59, part II, 2016, 114-119.
23. M. Panayotova, G. Gicheva, L. Dzherahov, N. Mincheva, "Liquid phase oxidation as a possibility for the removal of oil compounds from produced water". Journal of Mining and Geological Sciences, 2017, v. 60, Part II Mining, Technology and Mineral Processing, 110-115.
24. M. I. Panayotova, N. N. Mintcheva, L. P. Djerahov, G. D. Gicheva, V. T. Panayotov, Electrochemical treatment of oilfield produced water, Journal of International Scientific Publications, Ecology & Safety ISSN 1314-7234, V. 11, 2017, 425-440.
25. Panayotova, M, S. Bratkova, N. Stoyanov, S. Dimovski, V. Panayotov, Assessment Of The Possible Negative Impact Of Tailings Ponds On Soil, Surface Water And Groundwater - A Case Study, In: Proc. of XVII Balkan Mineral Processing Congress, Antalya, Turkey, November 01-03, 2017, pp. 455-463.
26. Panayotov, V. M. Panayotova, The Role Of The Flotation Pulp Oxidation-Reduction Potential In The Electrochemically Impacted Flotation Of Polymetallic Ores, In: Proc. of XVII Balkan Mineral Processing Congress, Antalya, Turkey, November 01-03, 2017, pp. 310-315. ISBN: 978-975-7946-42-7.
27. Panayotova, M., V. Panayotov, Recovery of indium from post consumer liquid crystal displays Sustainable development, Year VII, volume 2/2017, 37-45 ISSN 1314-4138.
28. Panayotov, V., M. Panayotova, Possibilities for hydrometallurgical extraction of zinc and lead from secondary non-metallic sources, Proceedings of the National Conference with International Participation "Science and Society, 2017", Kardzhali, 5-6.10.2017
29. Marinela Panayotova, Gospodinka Gicheva Nely Mintcheva Lubomir Djerahov, Study on the Air Quality During the Operation of the Mizia Quarry Journal of Mining and Geological sciences, Vol. 61, Part II, Mining, Technology and Mineral Processing, 2018, 92-96, ISSN 2535-1184.
30. Marinela Panayotova, Neli Mintcheva, Lubomir Djerahov, Gospodinka Gicheva, Kinetics and Thermodynamics of Silver Ion Immobilisation by Natural Clinoptilolite, Journal of Mining and Geological sciences, Vol. 61, Part II, Mining, Technology and Mineral Processing, 2018, 87-91, ISSN 2535-1184
31. Marinela Panayotova, Vladko Panayotov, Copper recovery from E-waste by leaching with ammonia-based solutions, Sustainable development, ISSN 1314-4138, v.1, 2018, 3-11.
32. M. I. Panayotova, N. N. Mintcheva, O. T. Gemishev, G. T. Tyuliev, G. D. Gicheva, L. P. Djerahov. Preparation and antimicrobial properties of silver nanoparticles supported by natural zeolite clinoptilolite. *Bulg. Chem. Commun.* 50, F (2018) 211–218.
33. Vladko Panayotov, Marinela Panayotova, Some options for establishing future technologies for the minerals processing - basic principles, results, perspectives, IMPC 2018, XXIX International Mineral Processing Congress, Moscow, Russia, paper 254.
34. Marinela Panayotova, Vladko Panayotov, Natural clinoptilolite modification for removing molybdate and sulfate ions from mineral processing wastewater, IMPC 2018, XXIX International Mineral Processing Congress, Moscow, Russia, paper 257.
35. Yerik Merkibaev, Marinela Panayotova, Vladimir Lukanov, Vladko Panayotov, Tatiana Chepushtanova, Sulfidation roasting as means to recover zinc from oxidized ores, *Comptes rendus de l'Acad'emie bulgare des Sciences*, Tome 71, No 8, 2018, 1116-1123.
36. Marinela Panayotova, Gospodinka Gicheva Nely Mintcheva Lubomir Djerahov, Study on the Air Quality During the Operation of the Mizia Quarry Journal of Mining and Geological sciences, Vol. 61, Part II, Mining, Technology and Mineral Processing, 2018, 92-96, ISSN 2535-1184.
37. Marinela Panayotova, Neli Mintcheva, Lubomir Djerahov, Gospodinka Gicheva, Kinetics and Thermodynamics of Silver Ion Immobilisation by Natural Clinoptilolite, Journal of Mining and Geological sciences, Vol. 61, Part II, Mining, Technology and Mineral Processing, 2018, 87-91, ISSN 2535-1184
38. Marinela Panayotova, Vladko Panayotov, Copper recovery from E-waste by leaching with ammonia-based solutions, Sustainable development, ISSN 1314-4138, v.1, 2018, 3-11.
39. M. I. Panayotova, N. N. Mintcheva, O. T. Gemishev, G. T. Tyuliev, G. D. Gicheva, L. P. Djerahov. Preparation and antimicrobial properties of silver nanoparticles supported by natural zeolite clinoptilolite. *Bulg. Chem. Commun.* 50, F (2018) 211–218.