



**Цицуашвили Виктория Сергеевна**  
Международный исследовательский  
институт интеллектуальных материалов

**Должность:** Научный сотрудник  
**Email:** tvs@sfedu.ru

**Дата рождения:** 25.02.1989 г., г.  
Ростов-на-Дону (Россия)

**Образование:**

01.09.2006 - 01.07.2011 гг.: Южный федеральный университет, Геоэкология, Геоэколог;  
01.09.2013 - 01.07.2015 гг.: Южный федеральный университет, Почвоведение,  
Магистр;  
01.09.2015 - 01.06.2019 гг.: Южный федеральный университет, Биологические науки  
(почвоведение), Аспирант.

**Направления исследований:**

Почва, тяжелые металлы, наночастицы, загрязнение, синхротронные методы.

**Исследовательская активность, область научных интересов:**

Изучение состояния тяжелых металлов в черноземах обыкновенных и растениях  
Нижнего Дона с использованием современных методов синхротронного излучения и  
нанотехнологий; исследование механизмов поглощения, трансформации и  
биоаккумуляции тяжелых металлов в почвах юга России; исследование техногенных  
рисков при загрязнении почв и растений наночастицами тяжелых металлов.

**Научные публикации в реферируемых журналах:**

Статьи, опубликованные в журналах, входящих в базы данных международных  
индексов научного цитирования **Scopus** и **Web of Science**:

1. Rajput V., Chernikova N., Minkina T., Gorovtsov A., Fedorenko A., Mandzhieva S.,  
Bauer T., **Tsitsuashvili V.**, Beschetnikov V., Wong M.H. Biochar and metal-tolerant

- bacteria in alleviating ZnO nanoparticles toxicity in barley // Environmental Research.; 2023.; Vol. 220.; 115243. <https://doi.org/10.1016/j.envres.2023.115243>
2. Kolesnikov S., Timoshenko A., Kabakova V., Minnikova T., Tsepina N., Kazeev K., Minkina T.M., Shende S.S., Mandzhieva S.S., **Tsitsuashvili V.**, Sushkova S. Effect of Platinum Nanoparticles (PtNPs) Pollution on the Biological Properties of Haplic Cambisols Eutric of the Caucasus Forests // Forests.; 2023.; Vol. 14, Is. 1.; 54. DOI: 10.3390/f14010054
  3. Pinskii D.L., Minkina T.M., Bauer T.V., Nevidomskaya D.G., Shuvaeva V.A., Mandzhieva S.S., **Tsitsuashvili V.S.**, Burachevskaya M.V., Chaplygin V.A., Barakhov A.V., Veligzhanin A.A., Svetogorov R.D., Khramov E.V., and Iovcheva A.D. Identification of Heavy Metal Compounds in Technogenically Transformed Soils Using Sequential Fractionation, XAFS Spectroscopy, and XRD Powder Diffraction // Eurasian Soil Science.; 2022.; V. 55, N 5.; P. 613-626. ISSN 1064-2293 DOI: 10.1134/S1064229322050076
  4. Minkina T., Nevidomskaya D., Fedorenko G., Fedorenko A., Rajput V.D, Shuvaeva V., **Tsitsuashvili V.**, Chaplygin V., Rajput P. Determination of Zinc Speciation in Soil using Synchrotron Radiation and Its Effects on Cellular Organelles of Phragmites australis // 7th International Conference on Climate Change, ICCC 2021.; 2022.; V. 1016, N 1.; 012008. doi:10.1088/1755-1315/1016/1/012008
  5. Bauer T.V., Pinskii D.L., Minkina T.M., Shuvaeva V.A., Soldatov A.V., Mandzhieva S.S., **Tsitsuashvili V.S.**, Nevidomskaya D.G., Semenov I.N. Application of XAFS and XRD methods for describing the adsorption characteristics of copper and zinc in hydromorphic soils // Environmental Geochemistry and Health.; 2022.; V. 44.; P. 335-347. DOI 10.1007/s10653-020-00773-2
  6. **Tsitsuashvili V.S.**, Minkina T.M., Soldatov A.V., and Nevidomskaya D.G. On Synchrotron Radiation for Studying the Transformation of Toxic Elements in the Soil;Plant System: A Review // Journal of Surface Investigation: X-ray, Synchrotron and Neutron Techniques.; 2021.; Vol. 15, N. 4.; P. 814-822. DOI: 10.1134/S1027451021040236
  7. Burachevskaya M.V., Minkina T.M., Mandzhieva S.S., **Cicuashvili V.S.**, Fedorenko E.S., Pogonyshev P.D., Coskun G., Kizilkaya R. The influence of sample preparation techniques on results of extraction of heavy metals from soil // International Symposium on Earth Sciences: History, Contemporary Issues and Prospects, ESHCIP 2020. IOP Conf. Ser.: Earth Environ. Sci.; 2020.; V. 579. ; N 1.; 012004. DOI:10.1088/1755-1315/579/1/012004
  8. Burachevskaya M.V., Nevidomskaya D.G., **Tsitsuashvili V.S.**, Rajput V., Bren D.V. Lead compounds in bottom sediments of the Seversky Donets floodplain // E3S Web of Conferences, APEEM 2020.; 2020.; V. 169.; P. 01004. DOI: <https://doi.org/10.1051/e3sconf/202016901004>
  9. Rajput V.D., Minkina T., Sushkova S., Mandzhieva S., Fedorenko A., Lysenko V., Bederska-Błaszczyk M., Olchowik J., **Tsitsuashvili V.**, Chaplygin V. Structural and Ultrastructural Changes in Nanoparticle Exposed Plants // Nanoscience for Sustainable Agriculture / Editors: Pudake R., Chauhan N., Kole C.; Springer, 2019.; Cham. Chapter 13.; P. 281-295 [https://doi.org/10.1007/978-3-319-97852-9\\_13](https://doi.org/10.1007/978-3-319-97852-9_13)
  10. Rajput V.D., Minkina T., Sushkova S., **Tsitsuashvili V.**, Mandzhieva S., Gorovtsov A., Nevidomskaya D., Gromakova N. Effect of nanoparticles on crops and soil

microbial communities // Journal of Soils and Sediments.; 2018.; V. 18, N 6. ; P. 2179-2187.

11. Rajput V.D., Minkina T.M., Behal A., Sushkova S.N., Mandzhieva S., Singh R., Gorovtsov A., **Tsitsuashvili V.S.**, Purvis W.O., Ghazaryan K.A. and Movsesyan H.S. Effects of Zinc-oxide nanoparticles on soil, plants, animals and soil organisms: a review // Environmental Nanotechnology, Monitoring & Management.; 2018. – V. 9. – P. 76-84.
12. Rajput V.D., Minkina T., Suskova S., Mandzhieva S., **Tsitsuashvili V.**, Chapligin V., Fedorenko A. Effects of copper nanoparticles (CuO NPs) on crop plants: a mini review // BioNanoSci.; 2018. – V. 8, N 1.; P. 36-42.
13. Burachevskaya M., Minkina T., Mandzhieva S., Bauer T., Chaplygin V., Sushkova S., **Tsitsuashvili V.**, Popileshko Y. Chemical partitioning of Zn in soil: application of two sequential extraction procedures // Geochemistry: Exploration, Environment, Analysis. – 2018.; V. 19, N. 2.; P. 93;100. DOI: <https://DOI.org/10.1144/geochem2017-079>.
14. Rajput V.D., Minkina T., Fedorenko A., **Tsitsuashvili V.**, Mandzhieva S., Sushkova S. Metal Oxide Nanoparticles: Applications and Effects on Soil Ecosystems // Soil Contamination: Sources, Assessment and Remediation / Editors: Jesper E. Lund. – Nova Science, 2018. – P. 81-106.
15. Minkina T.M., Nevidomskaya D.G., Shuvaeva V.A., Soldatov A.V., **Tsitsuashvili V.S.**, Zubavichus Y.V., Rajput V.D., Burachevskaya M.V. Studying the transformation of Cu<sup>2+</sup> ions in soils and mineral phases by the XRD, XANES, and sequential fractionation methods // Journal of Geochemical Exploration. – 2018.; V. 184.; P. 365-371.



**Tsitsuashvili Viktoriia**

**Born:** Rostov-on-Don ,Russia, 25.02.1989

**Address:** Southern Federal University,  
178/24 Sladkova str., Rostov-na-Donu,  
344090 Russia.

**Email:** [tv@sfedu.ru](mailto:tv@sfedu.ru)

**Website:** <http://nano.sfedu.ru>

**Academic positions:** researcher

**Higher education:**

Southern Federal University (09.01.2006 – 07.01.2011) Geoecology, Geoecologist,  
Southern Federal University (01.09.2013 -01.07.2015), Soil Science, Master.

**Postgraduate education:**

Southern Federal University (09.01.2015 –06.01.2019), Biological Sciences (Soil Science),  
PhD Student.

**Research sectors:**

soil, heavy metals, nanoparticles, pollution, X-ray synchrotron methods.

**Fields of interest:**

Study of the state of heavy metals in ordinary chernozems and plants of the Lower Don using modern methods of synchrotron radiation and nanotechnology; study of the mechanisms of absorption, transformation and bioaccumulation of heavy metals in the soils of southern Russia; study of technogenic risks due to contamination of soils and plants with nanoparticles of heavy metals.

**Scientific publications in referred journals:**

1. Rajput V., Chernikova N., Minkina T., Gorovtsov A., Fedorenko A., Mandzhieva S., Bauer T., **Tsitsuashvili V.**, Beschetnikov V., Wong M.H. Biochar and metal-tolerant

- bacteria in alleviating ZnO nanoparticles toxicity in barley // Environmental Research.; 2023.; Vol. 220.; 115243. <https://doi.org/10.1016/j.envres.2023.115243>
2. Kolesnikov S., Timoshenko A., Kabakova V., Minnikova T., Tsepina N., Kazeev K., Minkina T.M., Shende S.S., Mandzhieva S.S., **Tsitsuashvili V.**, Sushkova S. Effect of Platinum Nanoparticles (PtNPs) Pollution on the Biological Properties of Haplic Cambisols Eutric of the Caucasus Forests // Forests. ; 2023. ; Vol. 14, Is. 1. ; 54. DOI: 10.3390/f14010054
  3. Pinskiy D.L., Minkina T.M., Bauer T.V., Nevidomskaya D.G., Shuvaeva V.A., Mandzhieva S.S., **Tsitsuashvili V.S.**, Burachevskaya M.V., Chaplygin V.A., Barakhov A.V., Veligzhanin A.A., Svetogorov R.D., Khramov E.V., and Iovcheva A.D. Identification of Heavy Metal Compounds in Technogenically Transformed Soils Using Sequential Fractionation, XAFS Spectroscopy, and XRD Powder Diffraction // Eurasian Soil Science. ; 2022. ; V. 55, N 5. ; P. 613-626. ISSN 1064-2293 DOI: 10.1134/S1064229322050076
  4. Minkina T., Nevidomskaya D., Fedorenko G., Fedorenko A., Rajput V.D, Shuvaeva V., **Tsitsuashvili V.**, Chaplygin V., Rajput P. Determination of Zinc Speciation in Soil using Synchrotron Radiation and Its Effects on Cellular Organelles of Phragmites australis // 7th International Conference on Climate Change, ICCO 2021. ; 2022. ; V. 1016, N 1. ; 012008. doi:10.1088/1755-1315/1016/1/012008
  5. Bauer T.V., Pinskiy D.L., Minkina T.M., Shuvaeva V.A., Soldatov A.V., Mandzhieva S.S., **Tsitsuashvili V.S.**, Nevidomskaya D.G., Semenov I.N. Application of XAFS and XRD methods for describing the adsorption characteristics of copper and zinc in hydromorphic soils // Environmental Geochemistry and Health. ; 2022. ; V. 44. ; P. 335-347. DOI 10.1007/s10653-020-00773-2
  6. **Tsitsuashvili V.S.**, Minkina T.M., Soldatov A.V., and Nevidomskaya D.G. On Synchrotron Radiation for Studying the Transformation of Toxic Elements in the Soil;Plant System: A Review // Journal of Surface Investigation: X-ray, Synchrotron and Neutron Techniques. ; 2021. ; Vol. 15, N. 4. ; P. 814-822. DOI: 10.1134/S1027451021040236
  7. Burachevskaya M.V., Minkina T.M., Mandzhieva S.S., **Cicuashvili V.S.**, Fedorenko E.S., Pogonyshev P.D., Coskun G., Kizilkaya R. The influence of sample preparation techniques on results of extraction of heavy metals from soil // International Symposium on Earth Sciences: History, Contemporary Issues and Prospects, ESHCIP 2020. IOP Conf. Ser.: Earth Environ. Sci. ; 2020. ; V. 579. ; N 1. ; 012004. DOI:10.1088/1755-1315/579/1/012004
  8. Burachevskaya M.V., Nevidomskaya D.G., **Tsitsuashvili V.S.**, Rajput V., Bren D.V. Lead compounds in bottom sediments of the Seversky Donets floodplain // E3S Web of Conferences, APEEM 2020. ; 2020. ; V. 169. ; P. 01004. DOI: <https://doi.org/10.1051/e3sconf/202016901004>
  9. Rajput V.D., Minkina T., Sushkova S., Mandzhieva S., Fedorenko A., Lysenko V., Bederska-Błaszczyk M., Olchowik J., **Tsitsuashvili V.**, Chaplygin V. Structural and Ultrastructural Changes in Nanoparticle Exposed Plants // Nanoscience for Sustainable Agriculture / Editors: Pudake R., Chauhan N., Kole C. ; Springer, 2019. ; Cham. Chapter 13. ; P. 281-295 [https://doi.org/10.1007/978-3-319-97852-9\\_13](https://doi.org/10.1007/978-3-319-97852-9_13)
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11. Rajput V.D., Minkina T.M., Behal A., Sushkova S.N., Mandzhieva S., Singh R., Gorovtsov A., **Tsitsuashvili V.S.**, Purvis W.O., Ghazaryan K.A. and Movsesyan H.S. Effects of Zinc-oxide nanoparticles on soil, plants, animals and soil organisms: a review // Environmental Nanotechnology, Monitoring & Management. ; 2018. – V. 9. – P. 76-84.
12. Rajput V.D., Minkina T., Suskova S., Mandzhieva S., **Tsitsuashvili V.**, Chaplugin V., Fedorenko A. Effects of copper nanoparticles (CuO NPs) on crop plants: a mini review // BioNanoSci. ; 2018. – V. 8, N 1. ; P. 36-42.
13. Burachevskaya M., Minkina T., Mandzhieva S., Bauer T., Chaplygin V., Sushkova S., **Tsitsuashvili V.**, Popileshko Y. Chemical partitioning of Zn in soil: application of two sequential extraction procedures // Geochemistry: Exploration, Environment, Analysis. – 2018. ; V. 19, N. 2. ; P. 93;100. DOI: <https://DOI.org/10.1144/geochem2017-079>.
14. Rajput V.D., Minkina T., Fedorenko A., **Tsitsuashvili V.**, Mandzhieva S., Sushkova S. Metal Oxide Nanoparticles: Applications and Effects on Soil Ecosystems // Soil Contamination: Sources, Assessment and Remediation / Editors: Jesper E. Lund. – Nova Science, 2018. – P. 81-106.
15. Minkina T.M., Nevidomskaya D.G., Shuvaeva V.A., Soldatov A.V., **Tsitsuashvili V.S.**, Zubavichus Y.V., Rajput V.D., Burachevskaya M.V. Studying the transformation of Cu<sup>2+</sup> ions in soils and mineral phases by the XRD, XANES, and sequential fractionation methods // Journal of Geochemical Exploration. – 2018. ; V. 184. ; P. 365-371.