

Name

Pshenychnyi Roman

Affiliation

Associate Professor of Theoretical and Applied Chemistry
Department

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Education:

- 2002–2007 Sumy State Pedagogical University (Ukraine), Department of Natural Sciences;
- 2008–2011 PhD study in the Vernadskyi Institute of general and inorganic chemistry of the Ukrainian National Academy of Sciences, Kyiv, Ukraine

Academic degrees

2012: Ph.D., specialty 02.00.04 – physical chemistry, Kyiv, Ukraine

Academic rank: Associate Prof.

Area of Research

Investigation regularities of the chemical interaction in multicomponent fluoride systems in the synthesis of the solid electrolytes with the fluoride ion conductivity; the influence of qualitative and quantitative composition of the obtained non-stoichiometric fluorides on the structure and their physico-chemical properties; establishing correlations between the composition and the anionic mobility of the synthesized materials; creation and study of electrochemical cells based on the synthesized solid fluoride-conducting electrolytes. Synthesis of metal oxides nanoparticles.

Professional experience:

- Since 2018: Associate Professor of General Chemistry Department, Sumy State University, Sumy, Ukraine
- 2012–2018: Lecturer of Chemistry Department, Sumy State Pedagogical University, Sumy, Ukraine
- 2011–2012: Junior researcher of the Vernadskyi Institute of general and inorganic chemistry of the Ukrainian National Academy of Sciences, Kyiv, Ukraine
- 2008–2011: PhD study in Researcher of the Vernadskyi Institute of general and inorganic chemistry of the Ukrainian National Academy of Sciences, Kyiv, Ukraine
- 2007–2008: Junior researcher of Chemistry Department, Sumy State Pedagogical University, Sumy, Ukraine

Participation in research projects:

- Chemistry of fluoride fuel compositions and coolants of alternative nuclear power, No 0112U004048 (2012-2013), leading researcher;
- The use of domestic zirconium raw materials for the development of scientific fundamentals of the synthesis of functional materials“, No 0113U001891 (2013-2015), researcher;
- Synthesis and properties of complex fluorides on the basis of REE of different levels of oxidation for functional materials of optical and electrochemical devices, No 0114U007081 (2014), project manager;
- Synthesis and transport properties of the new compounds with high ionic conductivity on the basis of complex fluorides and oxides of lead, tin and zirconium“, No 0115U00222 (2015-2017), leading researcher.

Teaching experience:

Since 2012: «Inorganic chemistry», «General chemistry», «Analytical chemistry», «Physical chemistry», «Chemical technology», «Coordination compounds», «Chemistry of rare elements», «Computer technologies in chemistry», «New materials and materials», «Medical chemistry»

Level of proficiency (English) B₂

Professional honors, awards and fellowships:

- Scholarship of the national Academy of Sciences of Ukraine for young scientists (2011–2013)
- The President of Ukraine grant for support of scientific researches of young scientists (2014)
- Scholarship of the Cabinet of Ministers of Ukraine for young scientists (2016– 2018)

The most significant publications:

1. *Pshenichny R.N., Omel'chuk A.A.* Interaction of Titanium(IV), Chromium(III), and Nickel(II) oxides with eutectic fluorozirconate melts. *Russ. J. Inorg. Chem.* **2013**, 58, 631–636.
2. *Pshenychnyi R.M., Pogorenko Yu.V., Omel'chuk A.O.* Synthesis and electrical conductivity of complex fluorides $KPbLnF_6$ ($Ln = Y, La, Nd, Sm, Gd, Ho, Yb$). *Ukrainskii khimicheskii zhurnal.* **2013**, 79, No.10, 71-75.
3. *Kompanichenko N.M., Omel'chuk A.A., Ivanenko A.P., Pshenichnyi R.N., Timukhin E.V.* Conductivity of nonstoichiometric fluorides LnF_{2+x} ($Ln = Sm, Eu, Yb$). *Russ. J. Appl. Chem.* **2013**, 86, 1835–1841.
4. *Rudkovskaya L.M., Pavlenko T.V., Pshenichny R.N., Omel'chuk A.A. and Vishnevsky A.A.* Tailored nanostructured zirconia polymorphs are prepared from zircon concentrate decomposition products. *Russ. J. Inorg. Chem.* **2014**, 59, 286–290.
5. *Pavlenko T.V., Pshenychnyi R.M., Omel'chuk A.O.* Hydrothermal synthesis of nanocrystalline solid solutions $Zr_xCe_{1-x}O_2$. *Ukrainskii khimicheskii zhurnal.* **2015**, 81, No.10, 87-91.
6. *Pogorenko Yu.V., Pshenichnyi R.N., Omel'chuk A.A. and Trachevskii V.V.* Electric conductivity of heterovalent substitution solid solutions of the $(1-x)PbF_{2-x}YF_3-SnF_2$ system. *Russ. J. Electrochem.* **2016**, 52, 374–384.
7. *Pogorenko Y., Pshenychnyi R., Lutsyk V., Omel'chuk A.* Transport properties of aliovalent substitution solid solutions of the system $(1-x)PbF_{2-x}YF_3-SnF_2$. *IOP Conf. Series: Materials Science and Engineering*, **2017**, 175, 012039.

8. Pogorenko Y.V., Omel'chuk A.O., *Pshenychnyi R.M.*, Bol'shanina S.B. Electrical conductivity of aliovalent substitution solid solution $Pb_{1-x}Sm_xSnF_{4+x}$. Proceedings of the 7th International Conference Nanomaterials: Applications and Properties, **2017**, 02MAN03-1.
9. Pogorenko Yu.V., *Pshenichnyi R.N.*, Omel'chuk A.A. and Trachevskii V.V. Transport properties of solid solutions of the system $xKYF_4 - (1-x)PbF_2$. Surface Engineering and Applied Electrochemistry, **2017**, 53, 533–541.
10. Bugaenko V.V., *Pshenichnyi P.N.* The Effect of the Anionic Composition of a Salt Melt on Solubilities of Aluminum and Zirconium Oxides. Russ. J. Inorg. Chem. **2018**, 63, 169–173.

Patents

1. Patent of Ukraine UA 94829 C2. Method for removal of oxygen from fluoride melts C01D 3/20, C01G 25/04, C01D 13/00 / Buhaienko V.V., Kasiiianenko H.Y., *Pshenychnyi R.M.* – № a201000664; Given: 25.01.2010; Published: 10.06.2011, № 11.