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Curriculum vitae

Family Name	Maslennikov
Name, Given name	Alexandre Glebovich
Date and place of birth	October 13, 1954, Moscow, USSR
Languages	Russian – fluently; English – fluently; French – fluently.
Scientific interests	Electrochemistry of actinides and heavy metals in aqueous solutions, chemistry of metals, alloys and intermetallic compounds, electroanalytical chemistry and their applications in nuclear fuel cycle and radioactive wastes treatment.
Education	
1972–1977	Student of Moscow State Lomonosov University, Chem. Dept. Qualification - Chemist - researcher
1980-1983	Postgraduate student, Institute of Physical Chemistry, Russian Academy of Sciences. Qualification – Ph.D. in radiochemistry
Professional activity	
1977-1980	Kurchatov Institute of Atomic Energy, Moscow. Engineer.
1980-now	Institute of Physical Chemistry, Russian Academy of Sciences (IPC RAS), Moscow
1980-1983	postgraduate student
1986	Presentation of Ph.D.Thesis. Electrochemical preparation and physico-chemical properties of actinides amalgams. Moscow IPC RAS 1986.
1983-1990	research associate in the Radiochemical Investigation Lab., IPC RAS
1990-1995	head of the group of electrochemistry of actinides and heavy metals
1995-1997	invited researcher in the Centre of Nuclear Researches CEA VALRHO, Marcoule, France. (in frames of the contract on the scientific co-operation IPC RAS Moscow – Commissariat à l'énergie atomique (France)).
1998	head of the group of electrochemistry of actinides and heavy metals IPC RAS
1998-2001	invited researcher in the Institute of Nuclear Physics, Orsay (l'IPN Orsay, France). (in frames of the contract on the scientific co-operation IPC RAS Moscow – IPN Orsay.

Scope of the work

Working in the Kurchatov Institute of Atomic Energy, A. Maslennikov participated in the R&D program aimed to create the pilot plant for the gas-fluoride reprocessing of the FBR fuel. The behavior of Ru metal, its oxides and fluorides in this process was the main topic of his studies at that time. In 1980 A. Maslennikov changed his scientific interests and passed to the IPC RAS, Moscow.

Working in the Radiochemical Investigations Lab. of IPC RAS he participated in the R&D program, directed on the utilization of Np-237, issued from fuel reprocessing. Since preparation of Pu-238 was chosen as one of the possible ways of such utilization, A. Maslennikov was engaged in the studies of the electrochemistry of Pu-238 in aqueous solutions. In dense co-operation with Industrial-Research Center "Mayak" he has developed electrochemical amalgam technology of Pu-238 metal production, including the electrolysis of Pu(III) aqueous solutions at Hg cathode followed by the thermal decomposition of Pu amalgams. Pu metal and its intermetallic compounds were used as isotope energy generators. The developed flowsheet for the Pu-238 energy sources production was patented in Russia in 1989.

In 1988 A. Maslennikov started the studies of the analytical applications of the electrochemical methods for concentration and determination of trace amounts of actinides and transition metals in the environmental objects and radioactive wastes. In particular, he has developed the methods for cathodic stripping voltammetry of trace U(VI) determination in sea water, differential pulse polarography method for U and Pu determination in the alkaline radioactive wastes, inverse stripping voltammetry method for trace Tc(VII) determination in alkaline solutions. Simultaneously the fundamental studies of Np(VII) and Pu(VII) electrochemical properties are carried out. At the same time he began the experiments on the electrochemical recovery of Tc from PUREX wastes solutions and from alkaline radioactive wastes.

These studies have found their development during the work of Dr. A. Maslennikov in French Nuclear Research Center "Marcoule" in 1995-97. He was involved in French SPIN program to develop the electrochemical method of Tc recovery from nitric PUREX waste solutions. The fabrication of the targets for Tc transmutation was considered as the principal goal of the study. The electrochemical method of Tc recovery from PUREX waste solution was patented in France, Japan and Great Britain in 1998.

Now Dr. A.. Maslennikov continues his co-operation with French colleagues, working in IPN Orsay, carrying out the fundamental studies in the field of Tc, Mo, Se and Sn electrochemistry of in the solutions of nitric acid. This work is aimed to clarify the behavior of these elements in the solutions of nuclear fuel cycle.

Teaching activity

4 master degree thesis and 2 Ph.D. thesis were prepared under Dr. A. Maslennikov's supervision.

Confidentiality of the results.

The research work of Dr. A. Maslennikov in the USSR during the period from 1977 to 1988 was carried out in frames of the confidential governmental programs. Therefore the majority of the results obtained during this period of his work are described in the reports which are still classified in Russia and cannot be presented in the current CV.

Publications and patents

Articles

1. Maslennikov A.G., Peretrukhin V.F., Terent'ev. Effect of inorganic ions and hydrazine on the uranium electrochemical amalgamation. *Sov. Radiochemistry*, 1984, v.26, No.4, p.470-475.
2. Kuranov K.V., Maslennikov A.G., Peretrukhin V.F. Interaction of uranium amalgams with nitrogen. *Sov. Radiochem.*, 1984, v.26, No.6, p.721-726.
3. Abuzwida M.A., Maslennikov A.G., Peretrukhin V.F. Polarographic determination of uranium and plutonium in alkaline solutions. *J. Radioanal. Nucl. Chem.* 1990, v.143, N 2, p.278-293.
4. David F., Maslennikov A.G., Peretrukhin V.F.. Electrochemical reduction of actinides to amalgams in aqueous solutions and some examples of its application. *J. Radioanal. Nucl. Chem.* 1990, v.143, N 1, p. 141-150.
5. David F., Maslennikov A.G., Peretrukhin V.F., Fourest B.. Californium separation from the previous actinides and lanthanides by means of electrochemical Cf reduction to amalgam in aqueous solutions. *Radiochimica Acta*, 1990, v.50, N 5, p.39-46.
6. Peretrukhin V.F., Maslennikov A.G.. The contribution of electrochemical researches to the development of the Np and Pu chemistry. in: *The Transuranium elements. Half a century.* Ed. by L. Morss and J. Fuger ACS Publ., N.Y. 1992, p.515-535.
7. Peretrukhin V.F., David F., Maslennikov A.. Electrochemical properties and thermodynamic stability of Pu and neighbour actinides in the oxidation state (V), (IV) in aqueous alkaline media. *Radiochim. Acta*, 65(1994)161-165.
8. Maslennikov A.G., Courson O., Peretroukhine V.F., David F., M.Masson. Technetium electrochemical reduction in nitric acid solutions at mercury and carbon electrodes. *Radiochimica Acta*, 78, 123-129 (1997).
9. Maslennikov A., Masson M., Peretroukhine V., Lecomte M.. Technetium electrodeposition from aqueous formate solutions. Electrochemical study. *Radiochimica Acta*, 1998, v.84, p.53-58.
10. Maslennikov A., Masson M., Peretroukhine V., Lecomte M.. Technetium electrodeposition from aqueous formate solutions at graphite electrode. Kinetic and Material Balance Study. *Radiochimica Acta*, 1998, v.83, p.31 -37.
11. Courson O., David F., Le Naour C., Bolyos A., Maslennikov A., Papadopoulos N.. Electrochemical behavior of technetium in acetic buffer. *Tcheque J. of Physics*, 49(1999)687.
12. Kareta A., Maslennikov A., Peretroukhine V. Electrochemical reduction of Tc(VII) at mercury electrode in alkaline solutions. *Russian Radiochem.*, 1999, v. 41, N 4, p.317-322.
13. Sladkov V.E., Peretroukhine V.F., Maslennikov A.G., David F.. Differential pulse polarography for U(VI)-Tc(VII) and U(VI)-Cr(VI) determination in alkaline solution, *Radiochimica Acta*, 2000 in press.
14. 9. B. Fourest, A. Maslennikov, F. David and M. Masson. Determination of Mo(VI), Ru(III), Re(VII) and NO₃⁻ by capillary electrophoresis in the solutions of nuclear fuel cycle, *Radiochimica Acta* (in press).
15. Maslennikov A., David F., Fourest B., Masson M., Peretroukhine V.

Electrochemical dissolution of simulated "white inclusions". Linear voltammetry of Mo, Re, Ru metals and their alloys in the solutions of nitric acid. *Radiochimica Acta* (submitted).

16. Maslennikov, B. Fourest, F. David, M. Masson, V. Peretroukhine, Electrochemical dissolution of simulated "white inclusions". Kinetics and material balance of Mo, Re, Ru metals and their alloys electrochemical dissolution in nitric acid. *Radiochimica Acta* (submitted).

Declassified reports.

1. Pererukhin V.F., Maslennikov A.G., Fedoseev A.M., Tananaev I.G., Budantseva N.A., Sokhina L.P., Chinyonov P.P., Ryakov V.M. Electrolyser design and plutonium amalgam preparation by aqueous solution electrolysis. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1981 25 p. (in Russian)
2. Pererukhin V.F., Maslennikov A.G., Smirnova G.M., Budantseva N.A., Sokhina L.P., Chinyonov P.P., Ryakov V.M. Improvement of electrolyser design and the study of the different factors effect on the electrolytic U, Np and Pu amalgamation. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1982, 26 p. (in Russian).
3. Pererukhin V.F., Maslennikov A.G., Tananaev I.G., Sokhina L.P., Chinyonov P.P., Ryakov V.M. The development of anion exchange technique for plutonium transformation from nitric to acetic media aimed to Pu amalgam preparation. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1983, 19 p. (in Russian)
4. Pererukhin V.F., Maslennikov A.G., Michalin A.V., Smirnova G.M., Budantseva N.A., Sokhina L.P., Chinyonov P.P., Ryakov V.M. Electrolysis procedure, plutonium amalgam treatment before the thermal decomposition and the design of the apparatus for amalgam thermal decomposition. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1983, 29 p. (in Russian)
5. Pererukhin V.F., Maslennikov A.G., Smirnova G.M., Sokhina L.P., Chinyonov P.P., Ryakov V.M., Kapitonov V.I. Electrochemical properties of uranium and TUE amalgams, mixed (U,Ni), (Pu,Ni), U(Sn), (Pu,Sn) amalgams and their thermal decomposition. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1986, 23 p. (in Russian).
6. Pererukhin V.F., Maslennikov A.G., Smirnova G.M., Budantseva N.A., Sokhina L.P., Chinyonov P.P., Ryakov V.M., Kapitonov V.I. Interaction of uranium and TUE amalgams with nitrogen. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1985, 20 p., (in Russian).
7. Pererukhin V.F., Bessonov A.A., Maslennikov A.G., Smirnova G.M., Ananjev A.V. N.A., Sokhina L.P., Chinyonov P.P., Ryakov V.M., Kapitonov V. Effect of organic reducing agents on the plutonium

amalgam formation and the development of the procedure for starting plutonium solution treatment. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1986, 30 p. (in Russian).

8. Pererukhin V.F., Bessonov A.A., Maslennikov A.G., Smirnova G.M., Sokhina L.P., Chinyonov P.P., Makarov M.B., Kapitonov V. Electrochemical preparation of plutonium-238 amalgams and their thermal decomposition. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1987, 36 p., (in Russian).
9. Pererukhin V.F., Silin V.I., Maslennikov A.G., Smirnova G.M., Glagolenko Yu.V., Rodchenko P.Yu., Chinyonov P.P., Svetlakov A.V., Kapitonov V. The design and laboratory test of the metal amalgamation electrolyser. Declassified joint report of the Institute of Physical Chemistry, Academy of Sciences USSR and Central Industrial Lab. N.F.R.P. "Mayak" Moscow-Chelyabinsk 1989, 17 p., (in Russian).
10. Maslennikov A.G., Peretroukhine V.F.. Chemical aspects of technetium-99 long term storage and transmutation: recovery from solutions, preparation in stable chemical forms, analytical aspects. Review of modern literature and IPC RAS experience. Note technique CEA VALRO 94/11, Marcoule 1994, 99 p.
11. Maslennikov A.. Electrode position du technetium d'un effluent du procédé PUREX. Note technique NT/SPHA/96/30, CEA VALRHO 1996 32 p.
12. Peretroukhine V, Silin V., Kareta A., Gelis A., Shilov V., Guerman K., Firsova E., Maslennikov A., Trushina V. Purification of alkaline wastes from actinides and technetium by co-precipitation using the method of appearing reagents. Report PNNL 11988, Richland Washington, p.1.1-3.14.
13. A. Maslennikov, F. David, V. Peretroukhine, M. Lecomte. Selenium electrochemistry. Applications in the nuclear fuel cycle. Rapport IPN Orsay, IPNO DR-16, 1998.
14. Maslennikov, F. David, E. Esbelin, M. Masson. Classified report CEA VALRHO – IPN Orsay 2000, 47 p. in press.
15. Maslennikov A., David F., Fourest B., Masson M., Genin X., Fedoroff M., Rouchaud J.-C., Peretroukhine V. Electrochemical properties and dissolution of simulated fission product. Mo-Ru alloy preparation by arc melting, analytical control of electrochemical dissolution process and the study of electrochemical dissolution of Mo, Re, Ru metals and their selected alloys in nitric acid. *Progress report on the activities March –December 2000*, 38 p
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2. Maslennikov A.G., Peretroukhine V.F., David F.. Oxidation potentials of Pu(V)/Pu(IV) and stability of Pu(V) in alkaline and neutral solutions. Proceedings of the Radiochemistry Conference, Helsinki, Finlande, p.202-209, sept. 1994.
3. Guerman K.E., Maslennikov A.G., Peretroukhine V.F., Rovny S.I., Ershov V.V., Chinennov P.P., Lecomte M.. Technetium transmutation: chemical forms of the targets, preparation and properties. Int. Conf. Global 1995, Ext. Abstr., v.2. p.159-164.
4. Maslennikov A., Peretroukhine V., Kapitonov V., Chinyenov P. Silin V. Electrochemical amalgam preparation of Pu-238 and its physico-chemical properties. Int. Conf. Global 1995, Ext. Abstr., v.2. p.89-93.
5. Garnov A., Nikitenko S., Maslennikov A., Peretroukhine V., Le Naour C., David F.. Kinetic isotope effect in the process of electrochemical amalgamation of Pu(III). Proceedings de la Conference NRC4, CP18, Saint Malo, 8-13 Sept. 1996.
6. Maslennikov A.G., Courson O., Peetroukhine V., David F, Masson M. Technetium electrochemical reduction in nitric solutions at mercury and carbon electrode. Proceedings de la Conference NRC4, GO2, Saint Malo, 8-13 Sept. 1996.
7. Maslennikov A., David F.², Fourest B., Masson M., Genin X., Fedoroff M., Rouchaud J.-C., Peretroukhine V.¹ ELECTROCHEMICAL DISSOLUTION OF SIMULATED "WHITE INCLUSIONS" Ext. Abstr. N 320 Global-2001 Conf. Paris Sept. 10-15, 2001.

Congresses.

1. David F., Maslennikov A.G., Peretrukhin V.F. Electrochemical reduction of actinide ions to amalgams in aqueous solution and some of its applications. International Conference "Actinides 89", Tashkent (USSR), Sept. 24-29 1989 (Poster communication).
2. Abuzwida M.A., Maslennikov A.G., Peretrukhin V.F.. Determination of uranium and plutonium by direct and stripping voltamperometry in alkaline media and in acetic solutions in presence of cupferone. Abstr. Int. Conf. "Actinides-89", Tashkent USSR 1989 p.404 (Poster communication).
3. Abuzwida M.A., Treesh M.B. Maslennikov A.G., Tatzu Yu.G., Kuz'min N.M.. The electrothermal atomic absorption spectrometry technique for determination of Rh in presence of uranium in nitric solutions. Abstr. Int. Conf. "Actinides-89", Tashkent USSR 1989 p.398. (Poster communication)
4. Abuzwida M.A., Maslennikov A.G., Peretrukhin V.F. Alpha-spectrometric determination of plutonium followed by thin film extraction. Abstr. Int. Conf. 21^{emes} Journees des Actinides, Algarve, Portugal, 1991, p.207. (Poster presentation).
5. David F., Maslennikov A.G., Peretrukhin V.F.. Electrochemical and thermodynamic properties of Np and Pu in alkaline media. Abstr. Int. Conf. 22^{emes} Journees des Actinides. Meribel, Savoia, France 1992 p.O2. (oral presentation).
6. Garnov A.Yu., Maslennikov A.G., Peretrukhin V.F., Krot N.N.. Pu isotope separation via electrochemical reduction of Pu(III) to

- amalgam in the aqueous solution Abstr. Int. Conf. 22^{èmes} Journées des Actinides. Meribel, Savoia, France 1992p.O21. (Oral presentation).
7. Ouguenoune H., David F., Bolyos A., Papadopoulos N., Maslennikov A.. Analyse d'ultratraces d'uranium par "stripping adsorption voltammetry. 2^{me} rencontre CNRS-direction du cycle du combustible (CEA), Saclay, 25 Mars 1993 (Oral presentation).
 8. Ouguenoune H., David F., Bolyos A., Papadopoulos N., Maslennikov A. Analyse d'ultratraces d'uranium par "stripping adsorption voltammetry.. Journées d'electrochimie, Grenoble, 9-14 Juin 1993 (Poster presentation).
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 10. Maslennikov A.G., Guerman K.E., Masson M.. Technetium transmutation: conversion of technetium to the metal or alloy from the PUREX raffinate. 2nd Seminar CEA - JAERI, 1995, Sept.12, Marcoule (Oral communication).
 11. Kareta A., Maslennikov A., David F., Peretroukhine V. Technetium electrochemical reduction at mercury drop electrode in the solutions of 0,1– 0,5 M NaOH. Practis-99. Ville-Neuve-les-Avignon, February 22-24, 1999. (Poster communication)
 12. Maslennikov A., Sladkov V., Peretroukhine V., Courson O., David F., Masson M. Electrochemical methods in the treatment and the analysis of the radioactive wastes. Journées nationales de radiochimie. Domaine St-Paul, Sept.27-29, 2000. (Oral presentation).
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Patents

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