12th International Platinum Symposium

11-14 August 2014, Yekaterinburg, Urals, Russia

http://12ips.uran.ru

PROGRAM

Organizers

Russian Academy of Sciences

Ural Federal University

named after the first President
of Russia B.N.Yeltsin

RFBR
Co-organizers and Sponsors

Open Joint Stock Mining-Metallurgical Company "Norilsk Nickel" - General Sponsor

The Amur mining company (Khabarovsk) - sponsor of the 12th International Platinum Symposium and organizer of the excursion to the Kondyor massif, Aldan Shield

International Association on the Genesis of Ore Deposits - informational supporting and sponsoring of young scientists

Society of Economic Geologists (SEG) - informational supporting and sponsoring of young scientists

Society for Geology Applied to Mineral Deposits - informational supporting and sponsoring of young scientists

The organizers of the 11th IPS are supporting and sponsoring of young scientists

IGCP Project 592 "Continental construction in Central Asia" - general supporting and sponsoring of young scientists

CAMECA - sponsor of the 12th International Platinum Symposium

Russian Mineralogical Society - informational supporting

Interdepartmental Petrographical Committee - general supporting
As Chairman of the Ural Branch of the Russian Academy of Sciences (RAS), I have the pleasure and honor to invite scientists and officials of mining companies to participate in the 12th International Platinum Symposium (12 IPS), which will be held for the first time in the Urals, where the world platinum industry has started its development. The Urals is not only the boundary separating the continents of Europe and Asia, but it is also a place that connects people from different continents, uniting them in the common Eurasian space. The unique geographical location of the Urals, its well-developed transportation infrastructure, and high level of social and economic development of the region make it attractive for investments and ambitious international projects, both in industry and science. The basis for this is the unique natural resources of the Urals exploited for over 300 years and still remaining the largest donor to the Russian industry. The progress of mining, metallurgy, engineering and electronic industry in the Urals stimulated the development of science and the emergence of large scientific and research centers, universities and other higher education institutions here. Currently Yekaterinburg is one of the largest research centers in Russia, with the Ural Branch of RAS that has several dozens of research institutes in different fields of research. The Ural Branch includes six institutes which carry out research in the field of the Earth sciences. One of them, the Institute of Geology and Geochemistry, UB RAS, is the organizer of the 12th International Platinum Symposium. Suggested scientific sessions promise a stimulating scientific program of oral and poster presentations. A variety of field trips to the places, where many of us have never been before, also promise to attract many participants. I do anticipate that the time spent in the Urals and in Yekaterinburg will be for most of you the period of new scientific contacts, ideas and plans for the future. I would like to thank the organizers of the 12th IPS for their work and look forward to meeting you in Yekaterinburg.

Valery Charushin, Vice-President of RAS
As Rector of the Ural Federal University named after the first President of Russia Boris N. Yeltsin, I am pleased to welcome participants of the 12th International Platinum Symposium held on August 11th - 14th, 2014. This Symposium is a great event in the Scientific World and provides nice opportunities for discussing the most important problems concerning the platinum-group elements, their geology, mineralogy, geochemistry, exploration, mining and technical applications. The Ural Federal University and the local organizing committee hope to create a friendly working atmosphere for a wide exchange of innovative scientific ideas and new research projects for all attendees, and a learning experience for young scientists. The Urals has always been one of the most industrially developed regions of Russia. A lot of world-class ore deposits of different types are situated in the Urals. They are the base for the Ural metallurgical and engineering industry. The Ural Federal University teaches tens of thousands of students each year, and after graduation most of them become leaders in this business. For the participants of the 12th International Platinum Symposium it will be interesting to learn that at the beginning of the XIX century the Urals became the biggest world producer of platinum and kept this position for more than 100 years. The first platinum placers were discovered in 1824 in the Central Urals and some of them are still exploited. The unique placers and small but famous ore platinum deposits are related to the so-called Ural Platinum Belt, the largest chain of mafic-ultramafic massifs that are situated in the Central and Northern Urals. You will get an opportunity to visit some massifs, deposits and enterprises and to touch upon the real history of the Ural metallurgical and platinum industry development. We hope that you will enjoy your trip to the Urals and your stay in our city and the University, and traveling in the Urals.

Yours sincerely
Victor Koksharov, Rector of the Ural Federal University
## 12 IPS - MEETING CALENDAR

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Post-Meeting Field Trips

Nizhny Tagi & Volkovsky

Kachkanar & Svetly Bor

Ioko-Dovyren, 15-29 August
9-10 August, 2014

PRE-SYMPOSIUM WORKSHOP

Processes in magma chambers with implication to genesis of ore deposits

Leaders: Rais Latypov and Steve Barnes

PRE-SYMPOSIUM FIELD TRIPS

July 31 - August 7, 2014 – Field trip 1, “Ultramafic-mafic intrusions, volcanic rocks and PGE-Cu-Ni deposits of the Noril’sk Province, Polar Siberia”

August 1-8, 2014 – Field trip 2, “PGM placer deposits and their sources in the ultramafic and alkaline rocks of the concentrically zoned Kondyor massif, Far East, Russia”


Sunday, August 10, 2014

15:00 – 17:30. Registration. Ural Federal University, (Lenin Avenue, 51)

18:00 – Bus trip to “Family House” Café. Shuttles begin travelling from the Ural Federal University, (Lenin Avenue, 51).

19:00 – 22:00. Evening Ice Break Party in “Family House” Café, (Uktus Ural-Alaskan-type massif, dunite body).

Monday, August 11, 2014

8:00. Registration

8:30 – 8:45. Welcoming Addresses:

Valery Charushin, Vice-President of Russian Academy of Sciences, Chairman of the Ural Branch of RAS.

Victor Koksharov, Rector of the Ural Federal University.
Sergey Votyakov, chairman of the 12th International Platinum Symposium, director of Institute of Geology and Geochemistry UB RAS


**Session 1. Magma dynamics, cumulates and ore genesis. Conveners: Rais Latypov & Steve Barnes**

Session focus. Magmatic ore deposits produced by mafic-ultramafic magmatism (e.g. massive sulphide bodies, chromitite and Fe-Ti oxide layers, platinum-group element-rich horizons) are igneous cumulate rocks that are generated by processes of magma differentiation, crystallization and solidification in crustal chambers. Therefore a key to understanding the origin of these deposits and consequently to developing a better strategy for their exploration is the deep knowledge of physico-chemical processes that govern magma evolution in crustal chambers and conduits. This session will emphasize the physical and fluid dynamic aspects of igneous petrology that bear on three major ore-related questions: where are ore deposits located? how did they get there? and how were they produced? The following fundamental aspects of magmatic processes will be addressed by this session: the relative importance of in situ crystallization versus crystal settling in evolving magma chambers and the origin of layering; the role of thermal and compositional convection in magma differentiation; the effects of compaction and post-cumulus melt migration within the cumulate pile on compositional profiles of magmatic bodies; the interactions between resident melt in the chamber and inflowing magma during chamber replenishment events; and the fluid dynamics and emplacement mechanisms of magmas, crystal slurries and emulsions. This session welcomes field, textural, mineralogical, geochemical, isotopic, experimental and numerical examination of igneous intrusions that provide us with new ideas on how magma chambers and conduits work to produce magmatic ore deposits.

9:30 – 10:00. **Keynote talk:** Robertson, J. C., Barnes, S. J & Metcalfe, G. CHAOTIC ENTRAINMENT CAN DRIVE SULFIDE REMOBILIZATION AT LOW MAGMA FLOW RATES

**Oral presentations:**

10:00 – 10:15. **Cruden, A.**, Saumur, B., Robertson, J. & Barnes, S. DYNAMICS OF INTRUSIVE Ni–Cu–PGE DEPOSITS: ENTRAINMENT, ASCENT AND BACKFLOW OF SULFIDE LIQUIDS


11:00 – 11:20. **Coffee break**


11:35 – 11:50. **Ariskin, A.A. & Danyushevsky, L.V.** THE SULFIDE COMAGMAT: MODELING R-FACTOR AND Cu-Ni-PGE TENORS IN SULFIDES FOR MULTIPLE-SATURATED MAGMAS


13:00 – 14:00 Lunch, Ural Federal University

14:00 – 14:15. Forien, M., Tremblay, J., Barnes, S.-J. & Pagé, P. SLUMPING SLURRIES AND KINETIC SIEVING: AN EXPERIMENTAL STUDY ON THE CHROMITE CUMULATE FORMATION

14:15 – 14:30. Lesher, C.M., Carson, H.J.E., Metsaranta, R.T. & Houlé, M.G. GENESIS OF CHROMITE DEPOSITS BY PARTIAL MELTING, PHYSICAL TRANSPORT, AND DYNAMIC UPGRADING OF SILICATE-MAGNETITE FACIES IRON FORMATION

Session 2. PGE mineralization in mafic-ultramafic intrusions of Russia: geology and petrogenesis.

Conveners: Alexey Ariskin & Wolfgang Maier

The session will focus on PGE mineralized mafic to ultramafic intrusive complexes of Russia. We invite presentations that provide information on their geology, petrology, mineralogy, and geochemistry and that help to constrain the petrogenesis of the intrusions and their different styles of PGE mineralization. Contributions dealing with sulfide and chromite transport in the parental magmas, and percolation of sulfides and volatiles through the cumulate pile are particularly welcome, as are talks and posters that have implications for exploration targeting, using a variety of techniques and vectors.

14:30 – 15:00. Keynote talk: Izokh, A. PGE MINERALIZATION HOSTED BY MAFIC-ULTRAMAFIC INTRUSIONS OF RUSSIA: GEOLOGY AND PETROGENESIS

Oral presentations:

15:00 – 15:15. Kazanov, O. MAGMATIC STRATIGRAPHY CONTROL ON PGM MINERALIZATION OF THE EAST PANA LAYERED MASSIF


15:45 – 16:05. Coffee break


**Oral presentations:**


17:20 – 17:35. Yang, S.H., Hanski, E., Li, C., Maier, W.D., Huhma, H., Mokrushin, A.V., & Qu, W.J. **MANTLE SOURCE OF 2.4-2.5 GA PLUME MAGMATISM IN THE FENNOSCANDIAN SHIELD: EVIDENCE FROM OS ISOTOPE COMPOSITION OF CHROMITE**


**18:20 – 20:00. Poster presentations. Fursheit.**

**Tuesday, August 12, 2014**

**Session 3. PGE-Cu-Ni sulphide-bearing ultramafic-mafic intrusions of the Noril’sk Province: insights into ore genesis and exploration.**

*Conveners: Kreshimir Malitch & Chusi Li*

Despite the long-term study of the ‘Noril’sk-type’ intrusions (e.g., Noril’sk-1, Talnakh and Kharaelakh), they remain a subject of ongoing debate related to their origin. A broad range of different or contradictory ideas for the formation of ore-bearing ultramafic-mafic intrusions in the Noril’sk region has been proposed. These include (a) differentiation of a single magma, (b) emplacement of multiple magmas with distinct compositions, (c) volcanic feeder systems, (d) a crust-mantle interaction model, (e) assimilation and (f) metasomatic models. A common assumption in these models is that the intrusions are coeval with the 250 Ma Siberian flood basalts, which erupted over a period of ~1 Ma or less, despite the fact that the age range of the intrusions is considerably larger. We invite contributions that use mineralogy, petrology, geochemistry, geochronology and structural controls to improve our understanding on the origin of ultramafic-mafic intrusions with different degrees of PGE-Cu-Ni sulphide mineralisation (i.e., economic, subeconomic and non-economic) in the Polar Siberia. New isotope-geochemical data that can be used for the exploration of PGE-Cu-Ni sulphide deposits are particularly welcome.

**9:00 – 9:15. Latypov, R. IN MEMORIAM OF FELIX MITROFANOV**


**9:45 – 10:15. Keynote talk: Krivolutskaya, N. Pt-Cu-Ni NORIL’SK DEPOSITS: GEOLOGY AND ORIGIN**

**Oral presentations:**

10:30 – 10:45. Jugo, P.J. REFINEMENT OF THE MODEL FOR SULFUR CONTENT AT SULFIDE SATURATION (SCSS) IN BASALTS AS FUNCTION OF OXYGEN FUGACITY (fO2)


Conveners: Sarah-Jane Barnes, Marina Yudovskaya & Judith Kinnaird

The session is intended to cover how magmatic platinum-group element (PGE) deposits form and how to use this information to explore for them. The concentrations of PGE in ore are generally only at the g/tonne level and thus the fact that the rocks are enriched in PGE is not evident in hand specimen. Furthermore most PGE are not readily soluble and thus there is no halo around ore bodies. Therefore exploration for PGE deposits depends heavily on a combination of lithogeochemical sampling and searching for minerals such as Ni-Cu sulphides and oxides (in particular chromite) that are present in many PGE deposits. Consequently how Ni-Cu sulphide and oxide deposits form and why some contain platinum-group elements and some do not is also of interest in studying how PGE deposits. Papers describing models for the formation of and exploration techniques for the deposits are welcome.


Oral presentations:


13:00 – 14:00 Lunch. Ural Federal University


14:30 – 15:00. **Keynote talk: Ripley, E. MAGMATIC NI-CU-PGE DEPOSITS IN SMALL INTRUSIONS: PROCESSES AND FUTURE RESEARCH DIRECTIONS**

**Oral presentations:**

15:00 – 15:15. Sproule, R., Giovenazzo, D. & Simmonds, J. **Ni-Cu-PGE TARGETING USING LITHOGEOCHEMISTRY**


15:30 – 15:50. **Coffee break**


16:20 – 16:30. **Information**

16:40 – 19:30. **Poster presentations. Furshet**

**Wednesday, August 13, 2014**

**Session 5. Ophiolites and Ural-Alaskan-type intrusions: traditional and innovative looks on the PGM formation.**

**Conveners: Evgeny Pushkarev & Edward Ripley**

The session will focus on the PGE enrichment and platinum-group minerals formation in chromitites and ultramafites of ophiolite complexes and Ural-Alaskan-type intrusions. Potential topics include: 1) Chromite and PGM formation in ophiolite and Ural-Alaskan intrusions – why do the huge chromite deposits in ophiolites contain relatively low concentrations of PGEs relative to the Pt-rich chromitites from Ural-Alaskan intrusions. 2) Geological, mineralogical, geochemical and experimental studies on the association between chromite and PGMs. 3) The role of high- and low-temperature fluids in the formation and distribution of PGEs in chromitites and ultramafic rocks. 4) The genesis of unusual sulfide-rich PGE mineralization in Ural-Alaskan intrusions. 5) PGMs are from source to placer - only accumulation or transformation? The unique PGMs placers of the World.

9:00 – 9:30. **Keynote talk: Garuti, G. THE CHROMITITE-PGE ASSOCIATION OF THE URALS: AN OVERVIEW**

**Oral presentations:**


9:45 – 10:00. Keays, R.R. & Prichard, H.M. **PRIMARY PLATINUM MINERALIZATION IN THE OWENDALE INTRUSION: NEW INSIGHTS INTO TO THE GENESIS OF PLATINUM MINERALIZATION IN URAL-ALASKAN INTRUSIONS**

ASSEMBLAGES IN “OPHIOLITIC” CHROMITITES: IMPLICATIONS FOR COLLISION-ZONE DYNAMICS AND OROGENIC PERIDOTITITES

10:15 – 10:30. Thakurta, J. ORIGIN OF URAL-ALASKAN TYPE COMPLEXES BY PERIODIC ASCENTS OF MAGMATIC PULSES FROM THE MANTLE SOURCE


11:00 – 11:20. Coffee break


11:35 – 11:50. Shukolyukov, Yu.A., Yakubovich, O.V. & Mochalov, A.G. DATING PLATINUM MINERALIZATION BY THE NOVEL \(^{10}^{\text{Be}}\) Pt-\(^{4}^{\text{He}}\) METHOD OF ISOTOPE GEOCHRONOLOGY

11:50 – 12:05. Tessalina, S. & Augé, T. PLATINUM ENRICHMENT IN ALASKAN TYPE INTRUSIONS AS A RESULT OF METALS RECYCLING IN SUBDUCTION ZONES AND Pt AFFINITY FOR Pt-Fe ALLOYS


13:05 – 14:20 Lunch. Ural Federal University

Session 6. PGE and Au through experiments
Conveners: Alexander Borisov & Anna Vymazalova

The session will focus on experimental studies of PGE and Au solubility in sulphides and silicate melts, PGE and Au partitioning between phases as well as PGE minerals stability and composition at T-P range from magmatic to hydrothermal conditions. Also contributions focused of phase equilibria in PGE-Au systems, and thermodynamic properties of PGE minerals and phases are welcomed.


14:50 – 15:20. Keynote talk: Tagirov, B. R. EXPERIMENTAL MODELING OF Ag, Au, Pd, AND Pt BEHAVIOR IN HYDROTHERMAL SYSTEMS
Oral presentations:

15:20 – 15:35. Borisov, A.A. NOBLE METALS IN EXPERIMENTAL COSMOCHEMISTRY

15:35 – 16:00. Coffee break

16:00 – 16:15. Cafagna, F. & Jugo, P. J. EXPERIMENTAL STUDY ON THE SOLUBILITY OF Te, Bi AND As IN SULFIDES AND THE EXSOLUTION OF DISTINCT METALLOID PHASES


19:00 – 23:00. BANQUET DINNER IN “WINTER GARDEN” RESTAURANT (Dzerzhinskogo, 2)

Thursday, August 14, 2014.

Session 7. New advances in the understanding of PGE mineralogy from magmatic to supergene environments
Conveners: Tanya Evstigneeva & Federica Zaccarini

The platinum group elements (PGE) form specific phases, the so called platinum group minerals (PGM) or they occur in solid solution, as trace and ultra-trace elements, mainly in sulfide and oxides. With few exceptions, the PGM form minute inclusions, generally less than 50 microns in size. Thus, their identification and characterization is a difficult target. It is also not easy to determine the amount of PGE occurring in solid solution because of their low concentration. Recently, the development of advanced methodology and scientific methods allow us to better characterize the PGM as well as to detect the PGE at very low concentration at the scale of ppm or ppb using in-situ techniques. Contributions that describe the latest in analytical methods and applications to PGE mineralogical study, including LA-ICPMS, PIXE, XRD, EPMA, SEM are welcome. Abstracts discussing other techniques are also strongly encouraged.


Oral presentations:


10:45 – 11:00. Duran, C.J., Barnes, S-J. & Corkery, J.T. SULFIDE-RICH PODS FROM THE LAC- 
DESILES Pd-ORE DEPOSITS, WESTERN ONTARIO, CANADA: PART 2. THE ORIGIN OF 
PLATINUM-GROUP ELEMENTS-BEARING PYRITES

11:00 – 11:20. Coffee break

RIVER, IVALO, NORTHERN FINLAND

FROM THE LEVACK MINE (SUDBURY, CANADA): INSIGHT INTO THE PROCESSES AFFECTING 
PGE

PLATINUM-GROUP MINERALS (PGM) FROM PLACERS – INDICATORS OF BEDROCK 
MINERALIZATION: MORPHOLOGY, TEXTURE (STRUCTURE), TYPES OF INCLUSIONS, 
COMPOSITION (A CASE STUDY IN SOUTH SIBERIA)

12:05 – 12:20. Talovina, I., Lazarenkov, V. & Vorontsova, N. PGE, Au AND Ag IN SUPERGENE 
NICKEL DEPOSITS ON OPHIOLITIC COMPLEXES IN URALS

Session 8. Open Session. 
Conveners: Elena Anikina & Frank Melcher

This session intends to highlight various aspects of PGE research in geological environments that are not 
covered by topics of the other sessions. The session also welcomes contributions with focus on PGE and 
PGM related to osmium isotopes, analytical methods, mineral processing, including quality and process 
control, hydrometallurgical processing, refining and product developments.

MINERALS AS A KEY TO UNRAVELLING MANTLE PROCESSES OF THE YOUNG EARTH

13:00 – 14:00. Lunch. Ural Federal University

Oral presentations:

Murzin, V.V., Pearson, N.J. & O’Reilly, S.Y. MINERAL CHEMISTRY AND ISOTOPIC COMPOSITION 
OF OPHIOLITIC Os-RICH ALLOYS AND Ru-Os SULFIDES: SYNTHESIS OF NEW DATA

14:15 – 14:30. Tessalina, S. HSE DISTRIBUTION AND Os ISOTOPE SYSTEMATICS IN 
HYDROTHERMAL DEPOSITS

14:30 – 14:45. Campbell, I.H., Park, J.-W., Cocker, H. & Lowczak, J. PLATINUM GROUP ELEMENT 
GEOCHEMISTRY IN GRANITOIDS AS A FERTILITY INDICATOR FOR GOLD AND COPPER 
MINERALIZATION

14:45 – 15:00. Park, J.-W., Campbell, I., Kim, J. & Arculus, R. EARLY PLATINUM ALLOY 
CRYSTALLISATION AND LATE SULFIDE SATURATION IN ARC-RELATED SUBMARINE LAVAS 
ASSOCIATED WITH MODERN VMS DEPOSIT

15:00 – 15:15. Ruan, B. & Lu, X. MANTLE PARTIAL MELTING, SULFIDE SEGREGATION AND 
METALLOGENIC POTENTIAL IN THE HONGSHISHAN MAFIC-ULTRAMAFIC COMPLEX, 
XINJIANG, NORTHWEST CHINA – IMPLICATION FROM PGE GEOCHEMISTRY

15:30 – 15:50. Coffee break

15:50 – 16:05. Vikentyev, I.V., Abramova, V.D., Moloshag, V.P. & Su Shangguo. PGE IN MINERALS OF VOLCANOGENIC MASSIVE SULFIDE DEPOSITS OF THE URALS: ORE GEOCHEMISTRY AND FIRST LA-ICP-MS DATA

16:05 – 16:20. Chaplygin, I.V., Meisel, T. & Bychkova, Y.V. NOBLE METALS IN HIGHTEMPERATURE VOLCANIC GASES (KAMCHATKA AND KURILES, RUSSIA)


17:00 – WRAP UP DISCUSSION, FUTURE PLANS AND SUGGESTIONS

18:00 – 20:00. 11-12 AUGUST, 2014. Poster presentations and furshet. Conference hall of the Ural Federal University. The number in the list is corresponding to the number of poster place.

Poster format. Posters should not exceed the dimensions of the poster board: 170 cm x 120 cm (double vertical A0). The poster boards will be available in 'landscape' format (longest dimension is horizontal).

Posters of the 1st Session “Magma dynamics, cumulates and ore genesis”.

7. Okrugin, A.V. A CYCLIC DIFFUSION-ACCUMULATION MODEL OF RHYTHMIC LAYERING IN BASIC MAGMA
Posters of the 2nd Session “PGE mineralization in mafic-ultramafic intrusions of Russia: geology and petrogenesis”.


11. Gongalskiy, B. PGE-Cu-Ni DEPOSITS IN THE NORTHERN TRANSBAIKALIA (SIBERIA, RUSSIA)


Posters of the 3rd Session “PGE-Cu-Ni sulphide-bearing ultramafic-mafic intrusions of the Noril’sk Province: insights into ore genesis and exploration”.

18. Mashkina, A.A. & Spiridonov, E.M. THREE TYPES OF APATITE FROM THE NORIL’SK SULFIDE ORES

19. Sluzhenikin, S.F. & Grigor’eva, A.V. PGE DISTRIBUTION AND MODES OF OCCURRENCE IN VEINLET-DISSEMINATED AND BRECCIA-LIKE ORES IN CONTACT-METAMORPHIC AND METASOMATIC ROCKS IN THE NORIL’SK REGION


Posters of the 4th Session “Models and exploration methods for magmatic Ni-Cu-PGE sulphide and PGE-oxide deposits from around the World”.


SULFIDE DEPOSIT: IMPLICATIONS FOR ORE GENESIS IN THE HUANGSHAN Ni-Cu ORE FIELD

Posters of the 5th Session “Ophiolites and Ural-Alaskan-type intrusions: traditional and innovative looks on the PGM formation”

30. Li, Y., Yang, J.S., Xu, X.Z., Liu, Z. & Jia Y. STRUCTURE AND MINERALOGY OF PERIDOTITE FROM BAER OPHIOLITE, YALUNG ZANGBO SUTURE ZONE, TIBET: RECORDS OF TWO STAGE EVOLUTION FROM MID-OCEAN RIDGE TO SSZ (need to be confirmed)
32. Mochalov, A.A. GENETIC MODEL OF PGM HOSTED IN CUMULATIVE GABBRO-PIROXENITE-DUNITE COMPLEXES OF THE KORYAK HIGHLAND, RUSSIA
33. Mochalov, A.G., Dmitrenko, G.G. & Goncharov, A.G. GENETIC FEATURES OF PLATINUM MINERALS IN ULTRAMAFIC COMPLEXES OF KORYAK HIGHLAND OPHIOLITES
34. Okrugin, A. Pt-Fe ALLOYS AS INDEX MINERALS FOR THE FORMATION OF PGE ORES IN MAFIC-ULTRAMAFIC ROCKS
38. Shmelev, V. PLATINUM-BEARING BELT OF THE URALS: TECTONIC SETTNGS, ROCK COMPLEXES AND STRUCTURE
39. Tolstykh, N. PLATINUM ALLOYS OF Ural-Alaskan TYPE INTRUSIONS FROM URALS AND ALDAN SHIELD
41. Xiong, F., Yang, J.S., Zhang, X.X., Robinson, P.T., Xu, X.Z., Li, Y., Liu, Z. & Liu, F. ORIGIN OF PODIFORM CHROMITITE: A NEW MODEL (need to be confirmed)

Posters of the 6th Session “PGE and Au through experiments”

43. Evstigneeva, T.L., Boeva, N.M., Trubkin, N.V. & Vymazalová, A. NEW DATA ON Pd-Sn-Te PHASES
44. Sinyakova, E.F. & Kosyakov, V.I FRACTIONAL CRYSTALLIZATION OF THE MELT IN THE Cu-Fe-Ni-S-(Pt, Pd, Rh, Ir, Ru, Ag, Au, Te) SYSTEM IN THE REGION OF PENTLANDITE CRYSTALLIZATION

Posters of the 7th Session “New advances in the understanding of PGE mineralogy from magmatic to supergene environments”.

45. Cherdantseva, M.V. & Vishnevsky, A.V. NEW DATA ON THE COMPOSITION OF SULFIDES AND TELLURIDES IN RUDNY INTRUSION (NW MONGOLIA)


47. Grokhovskaya, T.L., Griboedova, I.G. & Karimova, O.V. DIVERSITY OF PGM ASSEMBLAGES IN PGE DEPOSITS OF THE MONCHEGORSK IGNEOUS COMPLEX, RUSSIA


52. Morozova, A. & Pushkarev, E. CHROMIAN GLAGOLEVITE AND OTHER HIGH-Cr SILICATES IN PGM-RICH CHROMITITES IN THE URAL-ALASKAN-TYPE INTRUSIONS AS GENETIC MARKERS


54. Vorontsova, N., Lazarenkov, V., Talovina, I. & Gaifutdinova A. PLATINUM-GROUP ELEMENTS AND GOLD IN SUPERGENE NICKEL DEPOSITS IN ZONAL ULTRAMAFIC MASSIFS OF THE URALS


Posters of the 8th Session “Open Session”.

56. Cocker, H., Park, J.-W., Campbell, I., Leys, C. & Valente, D. PLATINUM GROUP ELEMENTS IN FELSIC SUITES ASSOCIATED WITH THE EI ABRA AND GRASBERG PORPHYRY DEPOSITS

57. Liu, Y.G., Lu, X.B., Wang, H.F., Yi, Q., Li, T.F., Qin, M., Meng, Y.F., & Zhang, B. METALLOGENIC PROCESS OF POYI MAGMATIC Cu-Ni DEPOSIT: REVELATION FROM THE CONTRAST OF PGE AND OLIVINE COMPOSITION WITH OTHER CU-NI- SULFIDE DEPOSITS IN THE EARLY PERMIAN, XINJIANG (need to be confirmed)


60. Mokrushin, A.V., Kudryashov, N.M., Huber, M. FIRST DISCOVERY OF SPERRYLITE IN ARCHAEOAN PATCHEMVAREK GABBORANOORTHOSITE (KOLA REGION, RUSSIA)

61. Osovetsky, B.M. & Barannikov, A.G. SURFACE OF PLACER PLATINUM UNDER ELECTRON MICROSCOPE
POST-SYMPOSIUM FIELD TRIPS


August 15 - 16, 2014 – Field trip 6, “The Ural Platinum Belt: The Kachkanar titanomagnetite deposit in clinopyroxenite. Platinum placers and lode deposits related with the Svetly Bor clinopyroxenite-dunite Uralian-Alaskan-type intrusion”

9-10 August, 2014
Pre-Symposium WORKSHOP

Processes in magma chambers with implication to genesis of ore deposits

Leaders: Rais Latypov and Steve Barnes
Pre-symposium Workshop, 12th International Platinum Symposium, Yekaterinburg, Russia (9-10 August 2014) (2 days)

(Each talk is 45 mins, 10 mins for discussion and 5 mins for changeover.)

9 August 2014 (Saturday) Morning
1. 8:00-9:00: "Platinum group elements – from the mantle to the crust” by Dr. Steve Barnes (CSIRO, Australia)
2. 9:00-10:00: "Structural controls on intrusion emplacement, filling of magma chambers and growth of plutonic bodies" by Prof. Alexander Cruden (Monash University, Australia)
   10:00:00-10:30: coffee break
3. 10:30-11:30: "An introduction to magma physics: physical constraints on magma flow and magmatic ore formation" by Dr. Jess Robertson (CSIRO, Australia)
4. 11:30-12:30: "Phase equilibria constraints and dynamics of magma differentiation in small to large magma chambers" by Prof. Alexey Ariskin (Vernadsky Institute, Russia)
12:30-13:30: lunch break

9 August 2014 (Saturday) Afternoon

5. 13:30-14:30: “Initial stage in the development of magma chambers” by Prof. Rais Latypov (Wits University, South Africa)

6. 14:30-15:30: "Intermediate stage in the development of magma chambers" by Dr. Olivier Namur (University of Cambridge, UK)

15:30-16:00: coffee break

7. 16:00-17:00: “Advanced stage in the development of magma chambers: the case for in situ crystallization” by Prof. Ian Campbell (Australian National University, Australia)

8. 17:00-18:00: “Final stage in the development of magma chambers” by Dr. Ilya Veksler (GFZ, Helmholz Centre Potsdam, Germany)

10 August 2014 (Sunday) Morning

1. 8:00-9:00: “Ore forming processes in magmatic sulfides – lessons from komatiites and disseminated sulfide ores” by Dr. Steve Barnes (CSIRO, Australia)

2. 9:00-10:00: “Relative roles of in-situ crystallization, mechanical transport, and dynamic upgrading in the formation of komatiite-associated chromite deposits" by Prof. Michael Lesher (Laurentian University, Canada)

10:00-10:30: coffee break

3. 10:30-11:30: “Petrological constraints on the formation Ni-Cu-PGE sulphide ores of the Noril’sk intrusions” by Dr. Nadezhda Krivolutskaya (Vernadsky Institute, Russia)

4. 11:30-12:30: “The role of in situ crystallization in the origin of PGE deposits in layered intrusions: old and new insights from the Bushveld Complex” by Prof. Rais Latypov (Wits University, South Africa)

12:30-13:30: lunch break

10 August 2014 (Sunday) Afternoon

5. 13:30-14:30: “Structures in cumulates and the role of gravitational slumping in the origin of ore deposits in layered intrusions” by Prof. Wolf Maier (Cardiff University, UK)

6. 14:30-15:30: “New insights into the origin of magmatic Au-PGE mineralization in the Skaergaard intrusion, Greenland” by Prof. Reid Keays (Monash University, Australia)

15:30-16:00: coffee break

7. 16:00-16:30: “The role of As as a collector of PGE in magma chambers“ by Prof. Hazel Prichard (Cardiff University, UK)
9. **16:30-17:30**: “The role of magma differentiation and post-magmatic processes in origin of PGE-rich chromitites in the Ural-Alaskan-type mafic-ultramafic intrusions” Dr. Evgeny Pushkarev (Institute of Geology and Geochemistry, Russia)

10 August, 18:00 – Shuttles begin travelling from the Ural Federal University, (Lenin Avenue, 51) to “Family House” Café. **Ice Break Party in the Uktus Ural-Alaskan-type massif.**
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Dr. Inna Safonova
Dr. Tat’yana Osipova
Dr. Galina Shardakova
Dr. Elena Zin’kova
Dr. Dasha Kiseleva
Dr. Sergey Pribavkin
Dr. Irina Gottman
Dear participants of the 12th International Platinum Symposium,

We propose to organize several pre-conference excursions related to sightseeing and museums of Yekaterinburg. All the excursions are free of charge.

Please let us know about your attitude for the following excursions given below. If you would like to participate in any of these excursions please contact Tat’yana Osipova from the local Organizing group (osipova@igg.uran.ru) to indicate your preferences.

Please mark the excursion(s) in which you would be interested to participate:

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<td>“Precious Metals of Urals”</td>
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<td>Kasli Cast-Iron Pavilion</td>
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Brief overview of the excursions are given below:
August 8, Friday

Ural Geological Museum

11\textsuperscript{00} – 12\textsuperscript{30}

Start from the Central (Tsentralny) Hotel, by foot at 10\textsuperscript{10}

Dmitry Voroshuk and Galina Shardakova will be your guides

Ural Geological museum locates at the Ural State Mining University. It was founded by Emperor Nicholas II in 1914, and at that time it was the first institution of higher education in Ekaterinburg. Since its foundation, a unique collection of rocks and minerals characterizing the Urals mineral treasures was collected and stored at the University. A new exhibition of “Platinum of the Urals” has specially been prepared for the delegates of the 12\textsuperscript{th} International Platinum Symposium. The exhibition presents platinum nuggets, platinum-bearing minerals and ores, host rocks from the main platinum deposits of the Urals, as well as books of XIX-XX centuries, describing the history of discovery and mining of platinum deposits of the Urals and a collection of old location maps of platinum deposits.
"Precious Metals of Urals"

11:00 – 13:00

Shuttle begins travelling from the Central (Tsentralny) Hotel at 10:30

Evgeny Pushkarev will accompany you during the excursion

We suggest to organize a short (about two hours) excursion to the enterprise "Precious Metals of Urals" (http://pm-ural.com/en/). The maximum number of participants is 10 people. Please let us know if you are interested in this excursion (e-mail: Pushkarev.1958@mail.ru). There are three free places left.

Kasli Cast-Iron Pavilion

in Yekaterinburg

Museum of Fine Arts

15:00 – 16:15

Start from the Central (Tsentralny) Hotel, by foot at 14:30

Tat'yan Osipova will accompany you to the Museum

Yekaterinburg Museum of Fine Arts (YMFA) is the largest art museum in the Urals, a unique depository of masterpieces of world significance.
YMFA is the only museum in the world where one may see the architectural construction made of cast-iron. This is the Kasli cast-iron pavilion, designed by St. Petersburg architect Eugene Baumgarten for the World Art and Industrial Exhibition in Paris (1900). The success of the Kasli factory surpassed all expectations. From morning to evening the stream of visitors circled round the pavilion examining and admiring “the Ural miracle” and its “stuffing”.

The Kasli cast-iron pavilion is the unique existing example of an eclectic approach to design, intertwining Old Russian and Scandinavian motifs with decorative elements traditional in the Byzantine and Venetian art. The pavilion is on the UNESCO list of world heritage monuments.

**August 9, Saturday**

**Bus excursion to the Ganina Yama with a visit of Temple-on-Blood**

10:00 – 14:00

*Start from the Central (Tsentralny) Hotel at 09:40*

*Tat’yana Osipova and Elena Zin’kova will accompany you during the excursion*

Ganina Yama is a relatively new monument constructed out of wood and the story of its erection is full of tragic accounts. It is visited by orthodox people from all over the country to pay respect to the late Romanovs – the emperor dynasty of Russia. The given temple complex was built were the remains of the royal family was found. It is there where their bodies were buried after they were killed. Besides that, Ganina Yama is not only a destination for Christians, but also for anyone familiar with Russian history who is interested in finding out more about the mystery of the murder of the czar’s family. Throughout that tour at Ganina Yama, you will get a briefing about the partially restored events of the horrific night of July 17th, 1917.

You will also see photographs that were taken not long before their deaths. Also there you can have a look at old icons manufactured by Ural craftsmen.
**Yekaterinburg city overview**

**Bus tour**

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**August 9, Saturday**

16:00 – 19:00

Start from the Central (Tsentralny) Hotel at 15:40

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**August 10, Sunday**

11:00 – 14:00

Start from the Central (Tsentralny) Hotel at 10:40

Tat’yana Osipova and Elena Zin’kova will accompany you during the excursion

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Yekaterinburg is considered to be an informal capital of the Urals. Founded by the allies of Peter I during his mature years, it became the bulwark of his ideas: starting in the 18th century, industry and craftsmanship began to flourish there.

The character of the city was easily seen in its architecture. The guide will show you the beautiful harbors of merchants and factory owners who took fancy to this rough region – buildings of the XVIII-XIX centuries; temples and churches – new and long-standing ones; skyscrapers and cozy tree nursery. Also in the city is a pedestrian street with famous statues, benches, and intricate street lights out of Kasli poured cast-iron.