



Programme of the Conference
ADVANCES IN METALLURGICAL PROCESSES AND MATERIALS

Dnipropetrovsk
May 27 – 30, 2007

Conference Venue - Student's (former Potemkin) Palace

Sunday May 27

17.00-19.00 Registration, Opening of Exhibition

18.00 Opening Reception

Monday May 28

8.00-9.40 Registration

9.40- 10.40 Plenary session (Great Hall)

Chair Prof.

R.Boom

Opening addresses:

- Violin ensemble “Young virtuosi”
- Head of Dnipropetrovsk regional administration **Mrs. Nadiya Deyeva**
- Rector of NMetAU Prof. Olexandr Velychko
- **Shatokha V.** Ukrainian ferrous metallurgy – state, goals, prospectives

10.40 - 11.10 Coffee break

11.10 - 13.00 Common Session (Great Hall)

Chair Prof. V.Shatokha

THERMOPHYSICAL PRINCIPLES IN METALLURGICAL PROCESSES

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|-------------|---|
| 11.10-11.40 | <i>Shankar A, Basu S., Lahiri A. K., Seetharaman S.</i> Property measurements of slags and fluxes towards slag design in blast furnace, BOF and continuous casting |
| 11.40-12.10 | <i>Jahanshahi S, Sun S., Zhang L.</i> Effects of transition metals on physicochemical properties of slags |
| 12.10-12.40 | <i>Choudhary M. K., Koranne V.M., Bannerjee P.S., Lahiri A.K.</i> Development of phases and its effect on sinter characteristics in high alumina iron ore sintering |
| 12.40-13.00 | <i>Gasik M. M, Gasik M. I.</i> Phase equilibria in the Si-O-C and Al-O-C systems |

13.00- 14.10 Lunch

14.10- 15.50 Common Session (Great Hall)

Chair Prof. M.Gasik

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| 14.10-14.40 | <i>Zhang G., Anacleto N., Kononov R., Dewan M. A. R., Ostrovski O.</i> Reduction of stable metal oxides |
| 14.40-15.10 | <i>Hasegawa M., Wakimoto K., Iwase M.</i> A Thermodynamic strategy to eliminate CO ₂ emission from ironmaking |
| 15.10-15.30 | <i>Lopatin D.V., Chizhikova V.M.</i> The new stability criterion of crystal-chemical stabilization of β -C ₂ S |
| 15.30-15.50 | <i>Kamkina L., Proydak Yu., Stovpchenko G., Stovba Ya.</i> Physicochemical simulation of metallurgical processes using thermodynamic principles and criteria of similarity |

15.50- 16.15 Coffee break

16.15- 18.15 Common Session (Great Hall)

Chair Prof. M.Iwase

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|-------------|---|
| 16.15-16.45 | <i>Lehmann J., Barrier D., Triolet N., Domgin JF., Gardin P.</i> Recent advances in the domain of physical-chemistry modeling at Arcelor Research |
| 16.45-17.15 | <i>El-Geassy A.A., Nasr M.I., Mousa E.A.</i> Kinetics and mechanism of gaseous reduction of MnO ₂ -doped Fe ₂ O ₃ compacts and the accompanying structural changes |
| 17.15-17.35 | <i>Lee J., Hwang B., Yamamoto K., Morita K.</i> Interpretation of Interfacial Reaction of Nitrogen with Molten Iron and its Alloys from Surface Tension Data |
| 17.35-17.55 | <i>Persson M., Zhang J., Seetharaman S.</i> Densities of multicomponent slags |
| 17.55-18.15 | <i>Kim H., Kim J.R., Min D. J.</i> A kinetic study on the carburization of Fe by using ¹³ Co isotope gas |

18.40 – bus transfer for Conference Dinner

19.00 Conference Dinner at the Bartholomeo Creative Club

Invited Lectures

Tuesday May 29

9.00 – 10.40 Common Session (Great Hall)

Chair Prof. L.Holappa

DEVELOPMENT OF ADVANCED AND INNOVATIVE TECHNOLOGIES

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|-------------|---|
| 9.00-9.20 | <i>Negami T., Hino M., Uragami A., Kobayashi I., Tsuge O.</i> R&D of New Iron Making Technology (ITMK3®) |
| 9.20-9.40 | <i>Ye G., Lindfors N.—O., Burstrom E.</i> Development of Advanced and Innovative Pyrometallurgical Processes by Pilot Testing |
| 9.40-10.00 | <i>Vartiainen A., Daavittila J., Krogerus H.</i> Advances in ferrous agglomeration technologies by OUTOTEC OYJ |
| 10.00-10.20 | <i>Medovar L.B.</i> Electroslag technologies and new structural materials |
| 10.20-10.40 | <i>Ohno K., Hino M.</i> Carburization Mechanism during Rapid Heating Process of Fine Iron Ore and Pulverized Coal Mixtures |

10.40- 11.00 Coffee break

11.00-13.15 Parallel Sessions 1 and 2

Parallel Session 1 (Small Hall)

Chair Prof. A.Tarakanov

IRONMAKING

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| 11.00-11.30 | <i>Seshadri V., da Silva C. A., da Silva I. A., Leão V. A.</i> Pretreatment of pig iron with particular reference of desulfurization with flux injection in ladles, torpedo car and Kambara reactor. |
| 11.30-11.50 | <i>Sadri A., Gordon I., Rampersad A.</i> Acousto Ultrasonic-Echo (AU-E): A Non-Destructive Testing Technique for Blast Furnace Hearth Refractory Condition Monitoring |
| 11.50-12.10 | <i>Van Stein Callenfels E. , Geerders M. , Gravemaker G.J. , Vaynshteyn R.</i> Experiences in recovery of chilled blast furnaces with the help of oxyfuel lances |
| 12.10-12.25 | <i>Tovarovskiy I.G., Lialiuik V.P., Demchuk D.A., Oriol G.I., Kostenko G.P., Listopadov V.S.</i> Technology of coke replacing in blast furnace smelting by using lump anthracite |
| 12.25-12.40 | <i>Kurunov I.F., Titov V.N., Emelyanov V.L., Kakunin V.V.</i> Effects of coke quality on blast furnace performance |
| 12.40-12.55 | <i>Tarakanov A.K., Ivaschenko V.P., Bobrovitsky S.V., Rezvin I.M.</i> Mathematical models for the iron production control |
| 12.55-13.05 | Gordon Ya., Shvidkiy V., Yaroshenko Yu. Application of regularities of gas movement to improve the performance of shaft and blast furnaces |
| 13.05-13.15 | Tovarovskiy I. G., Bolshakov V.I, Shutylev F.M., Gordon Ya.M. The analytical investigation of the influence of iron-bearing burden materials distribution on blast furnace performance and optimal parameters |

Parallel Session 2 (Great Hall)

Chair. Prof. R.Reddy

ADVANCED PROCESS TECHNOLOGY IN NON FERROUS METALLURGY

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|-------------|---|
| 11.00-11.30 | <i>Malyshev V.V., Gab A.L., Gaune-Escard M.</i> Past, present and future of molybdenum electrometallurgical processes in ionic melts |
| 11.30-12.00 | <i>Zhang M., Reddy Ramana G.</i> Modeling Of Low Temperature Aluminum Electrowinning In Chloroaluminate Ionic Liquid Electrolytes |
| 12.00-12.30 | <i>Morita K., Miki T., Yoshikawa T.</i> Thermodynamics on metallurgical refining processes for solar grade silicon |
| 12.30-12.50 | <i>Kutsova V.Z., Nosko O.A., Sherstobitova A.S.</i> Alloying effect on structure and properties of solar silicon and Si _{0.85} Ge _{0.15} alloys |
| 12.50-13.10 | <i>Taran A.G.</i> Technological flowsheet of low-carbon silicomanganese production with the use of Indian raw material resources |

13.15-14.20 Lunch

14.20-16.20 Parallel Sessions 1 and 2
Parallel Session 1 (Great Hall)

Chair Prof. K. Mills

STEELMAKING

Part1

| | |
|-------------|---|
| 14.20-14.50 | <i>R. Hurman Eric</i> Physical Modeling of High Strength Bottom Blown Ferroalloy/Stainless Steel Refining Reactors |
| 14.50-15.20 | <i>Park S.-C., Woo Da.-H., J.-H. Park, Kang Y.-B., Jung I.-H, Jang C.-H., Kim H.-S., Lee H.-G.</i> Inclusion Control for Making Clean Steels |
| 15.20-15.40 | <i>Miyamoto K., Naito K., Kitamura S., Sano N.</i> Velocity of Top-blown Jet and Behavior of Cavity Depth under Vacuum Pressure |
| 15.40-16.00 | <i>Kostetsky Y. V., Karpov V. P., Mironov D.Y.</i> Advanced technological solutions for quality steel production with copper contaminated scrap |
| 16.00-16.20 | <i>Vardar E., Eric R.H.</i> Smelting of Iron Ore in Fe-Cr-C-Si Melts |

Parallel Session 2 (Small Hall)

Chair Prof. M.Gaune-Escard

ADVANCED MATERIALS

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| 14.20-14.40 | <i>Gasik M. M., Gasik M. I., Urazlina O. Yu., Kutuzov S. V.</i> Multiphysical modeling of antracite treatment in an electrical electrocalcinator |
| 14.40-15.00 | <i>Malyshev V.M., Gab A.I., Astrelin I.M., Gaune-Escard M.</i> Electrodeposition of tungsten coatings obtained from tungstate-metaphosphate melts |
| 15.00-15.20 | <i>Karpov V.J.</i> Gas-eutectic material - gasar, established by an electric arc |
| 15.20-15.40 | <i>Li B.W., Gao Z.Y., Ren H.P., Zhang X.F., Zhao T., Zhao Z.W., Lu Z.P.</i> Effects of rare earth tailings content on microstructures of tailing glass-ceramics |
| 15.40-16.00 | <i>Kutsova V.Z., Kovzel' M.A., Kravchenko A.V., Prutchikova V.V., Madzik H.P.</i> Features of structure formation and kinetics of bainite transformation in high chromium cast irons |
| 16.00-16.20 | <i>Kalinushkin Y., Pinchuk S., Levko O.</i> Lithium manganese dioxide (LiMn ₂ O ₄) – a perspective cathode material for power-consuming and portable battery |

16.20- 16.45 Coffee break

16.45-18.25 Parallel Sessions

Parallel Session 1 (Great Hall)

Chair Prof. P.Scheller

STEELMAKING

Part 2

| | |
|-------------|---|
| 16.45-17.15 | <i>Holappa L.E.K., Lind M.</i> Mechanism and kinetics of transformation of alumina inclusions in steel by calcium treatment |
| 17.15-17.45 | <i>Tanaka T., Ueda M., Ogiso Yu., Ohmachi M.</i> Trial of Capillary Refining in Steelmaking Process |
| 17.45-18.05 | <i>Seshadri V., Lascosqui P.S.B., Moreira D.B., da Silva I.A., da Silva C.A., Leão V.A.</i> A Macroscopic Model for Inclusion Removal in a RH Degasser |
| 18.05-18.25 | <i>Stovpchenko G., Gryshchenko Yu., Polskij G., Kravchenko V., Em Yu., Cykalov V., Roslik A.</i> Defects authentication and ladle treatment improvement for increasing of railway wheels' quality |

Parallel Session 2 (Small Hall)

Chair Prof. S.Seetharaman

PROTECTION OF ENVIRONMENT AND RECYCLING TECHNOLOGIES

Part 1

| | |
|-------------|--|
| 16.45-17.15 | <i>Matsuura H., Yajima K., Tsukihashi F.</i> Recycling of Metals from Steelmaking Dust by using Chlorination Reaction |
| 17.15-17.45 | <i>Xiao Y, Balentina C.F., Yang Y., Voncken J.H.L., Boom R.</i> Metal Recovered from MSWI Bottom Ash Vitrification - Copper removal from iron based alloy |
| 17.45-18.05 | <i>Inoue R., Suito H.</i> Immobilization of Fluorine in Steelmaking Slags by Hydrothermal Treatment |
| 18.05-18.25 | <i>Li C., Zhang X., Takahashi R.</i> SO ₂ Removal Activity and Physical Properties of Activated Semi-cokes as an Alternative to Commercial Activated Carbon |

- Invited Lectures

Wednesday May 30

9.00-11.10 Parallel Sessions 1, 2 and 3

Parallel Session 1 (Business Drawing-Room)

Chair Prof. R.Boom

CONTINUOUS CASTING AND METAL FORMING

Part 1

| | |
|-------------|---|
| 9.00-9.30 | <i>Mills K., Kromhout J., Hamoen A., Boom R.</i> Selection of Mould fluxes for thin slab casting |
| 9.30-10.00 | <i>Nagata K., Nakada H.</i> Designing of Mold Flux for Continuous Casting of Steel |
| 10.00-10.20 | <i>Seshadri V., Cravo V.O., Moreira D. B., da Silva C. A., da Silva I. A., Leão V. A.</i> Development and Validation of a Grade Transition Model Through Physical Modeling and Plate Sampling |
| 10.20-10.40 | <i>Burbelko A.A., Semenov I.A., Sobecki M.</i> Modeling of the segregation in the continuous ingot by cellular automaton method |
| 10.40-10.55 | <i>Popov M.V., Balakin V.F.</i> A New Method And Technology Of High-Rate Plastic Deformation For Modifying Physical And Mechanical Properties Of Metals |
| 10.55-11.10 | <i>Frolov Ya.V.</i> Widening of Warm Rolling Purposes for Non-Austenite Steels in Precision Tubes Production |

Parallel Session 2 (Great Hall)

Chair Prof. L.Medovar

STEELMAKING

Part 3

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|-------------|--|
| 9.00-9.30 | <i>Volkova O., Sahebkar Moghaddam B., Scheller P.R., Aneziris C.G., Hubalkova J.</i> Ladle heating procedure and its influence on the oxidation resistance of MgO-C refractories |
| 9.30-9.50 | <i>Zhang Z.T., Li W.C., Wang X.D., Zhang M. and Seetharaman S.</i> Investigation of wetting characteristics of MgAlON-BN refractories |
| 9.50-10.10 | <i>Matsushita T., Mukai K.</i> In-situ Observation of Molten Slag and Metal Penetration Behaviour into Porous Refractories |
| 10.10-10.30 | <i>Grigorovich K.V., Shibaev S.S., Trushnikova A.S., Garber A.K.</i> Oxide Inclusion Control of Clean Steels And Ladle Treatment Optimization |
| 10.30-10.50 | <i>Kostetsky Y.V., Kukuy D.P., Kvasov I.V., Khodyachikh V.S., Degtyarenko I.V., Omelchenko A.A.</i> Application of vibroacoustic monitoring technique on a ladle furnace unit during steel treatment |

Parallel Session 3 (Small Hall)

Chair Prof. F.Tsukihashi

PROTECTION OF ENVIRONMENT AND RECYCLING TECHNOLOGIES

Part 2

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|-------------|--|
| 9.00-9.20 | <i>Pushpalal Dinilprem G. K., Takahashi R.</i> An overview on Utilization Technologies of Coal in Construction Industry; Focusing on Environmental Impact of SINO Indian Brick Industry and alternative technologies |
| 9.20-9.40 | <i>Zhang C., Zhu W., Chen S., Miao X., Yuan H.</i> Harmonious Development of Society with Materials in China. A Prospect of Utilization for Waste Plastics as Metallurgical Raw Materials in China |
| 9.40-10.00 | <i>Sawai T., Oonuki K., Kumazawa H., Manabe T.</i> The fundamental study on pyrolysis and gas reaction behavior of waste tire chips as carbonaceous materials |
| 10.00-10.20 | <i>Xu L., Li W., Liu M., Wang H., Bi S., Bi Yu.</i> Metal Recovery and Inorganic Eco-materials from Tailings by Leaching-Sintering Process |
| 10.20-10.40 | <i>Kurunov I.F., Titov V.N., Bolshakova O.G.</i> Analysis of effective ways to recycle the dispersed iron-bearing metallurgical wastes |
| 10.40-11.00 | <i>Gogenko O., Kekukh A., Kotlyar M., Shatokha V.</i> Application of a peat as an additive for preparation of ferrous gas cleaning sludges for sintering |

11.00- 11.30 Coffee break

- Invited Lectures

11.30-13.10 Parallel Sessions 1 and 2
Parallel Session 1 (Great Hall)

Chair Prof. G.Stovpchenko

STEELMAKING

Part 4

| | |
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| 11.30-11.50 | <i>Apeldoorn G.J., de Vries J.S., Podlin V., Heijne W.E.</i> Achievements in automation of the BOF process |
| 11.50-12.10 | <i>Doostmohammadi H., Stovpchenko G., Prilutski E., Medovar L., Gryshchenko Yu.</i> Problem of carbon nanotubes application in Fe-C alloys |
| 12.10-12.30 | <i>Rabinovich A., Tregubenko G., Bublikov Yu., Polyakov G., Sidorenko V., Puchikov A., Uzlov O.</i> New Steels Inoculated by Ti+Al+N |
| 12.30-12.50 | <i>Tsepelev V.S., Baum B.A., Tuagunov G.V., Barishev E.E., Vykhin V.V.</i> The new technology of temperature-time preparing of a melt |
| 12.50-13.10 | <i>Kalynushkin Y., Balakin O., Sitalo Yu.</i> Liquid phase effect on the structure formation of peritectic steels |

Parallel Session 2 (Business Drawing-Room) Chair. Prof. V. Grynkevych

CONTINUOUS CASTING AND METAL FORMING

Part 2

| | |
|-------------|---|
| 11.30-11.50 | <i>Shima S., Maruki Y., Nakashima J., Yamamura H., Oka Y.</i> Soft reduction technology for high quality steel in Nippon steel corporation |
| 11.50-12.10 | <i>Semenow I., Sobacki M., Huptys J., Gruszczynski J., Burbelko A.A.</i> Implementation of technology of slab production in K60 grade |
| 12.10-12.20 | <i>Hassel Th., Golovko A., Krause Ch., Bach Fr.-W.</i> Using the hot extrusion and drawing processes for producing the tubes of magnesium-calcium alloys for medicine |
| 12.20-12.30 | <i>Grynkevych V., Danchenko V.</i> On The Solution Of Metal Forming Boundary Value Problems In Real Time Mode |
| 12.30-13.50 | <i>Burbelko A.A., Kapturkiewicz W., Gurgul D.</i> The reducing of artificial anisotropy in solidification modeling on cellular automaton |
| 13.50-13.00 | <i>Danchenko V.N., Vyshinskiy V.T.</i> System-Modules in the Pilger Rolling Mills |
| 13.00-13.10 | <i>Danchenko V.M., Grydin O.Yu, Kalashnikov Yu.Yu.</i> Mathematical Modelling of the Twin-Roll Casting Process |

13.10-14.30 Lunch

14.30-15.15 Plenary session (Great Hall) – Closing of the Conference

15.30-17.15 Round table for industry representatives (Business Drawing-Room)

17:45 - bus transfer for the Conference Dinner

18.00 - Conference Dinner on the board of “Laguna” ship (trip by Dnipro river with Ukrainian traditional cuisine served from the restaurant “Khutir”)

Thursday May 31

Plant visits and Cultural tours

- Invited Lectures