

Mon, 18 Apr, Talks

Room E2 08:45–09:00 EGU2016-11932 Drastic changes in the Nordic Seas oceanic circulation and deepwater formation in a Pliocene context. By Camille Contoux, Zhongshi Zhang, Stijn De Schepper, Camille Li, **Kerim Nisancioglu**, and Bjorg Risebrobakken

Room G1 09:45–10:00 EGU2016-4996 The pre-Caledonian Large Igneous Province and the North Atlantic Wilson Cycle. Christian Tegner, **Torgeir B. Andersen, Fernando Corfu, Sverre Planke, Hans Jørgen Kjøll, and Trond H. Torsvik**

Room G1 15:45–16:00 EGU2016-2772 Hyperextension, micro-continents, magma-poor and magma-rich segments in the pre-Caledonian margin of Baltica: research in progress. By **Torgeir B. Andersen, Johannes Jakob, Hans Jørgen Kjøll, Fernando Corfu**, Christian Tegner, **Manar Alsaif, Ander S. Enger, and Øystein Kjeldberg**

Room L2 16:00–16:15 EGU2016-2635 Modelled non-linear response to climate of Hardangerjøkulen ice cap, southern Norway, since the mid-Holocene. By Henning Åkesson, **Kerim H. Nisancioglu**, Rianne H. Giesen, and Mathieu Morlighem

Room L1 18:13–18:28 EGU2016-8829 Core history from paleomagnetic data: Potential changes in stratification but no evidence for a Mesoproterozoic inner core age. By Aleksey Smirnov, John Tarduno, **Evgeniy Kulakov**, Suzanne McEnroe, and Richard Bono

Mon, 18 Apr, Posters

X1.316 EGU2016-2942 A unified approach to fluid-flow, geomechanical, and seismic modelling. By Viktoriya Yarushina and **Alexander Minakov**

X2.101 EGU2016-7280 Nearshore half-grabens as analogues for offshore, early Carboniferous rift basins along the SW Barents Sea Margin. By Jean-Baptiste Koehl, Steffen G. Bergh, Kjetil Indrevær, Halldis Lea, Espen Bergø, Tormod Henningsen, Tore Forthun, and **Jan-Inge Faleide**

X2.93 EGU2016-3292 Origin of the Gargia Nappe in the northernmost Scandinavian Caledonides: Pre-Caledonian hyperextension or a traditional basement-cover nappe? By **Fernando Corfu and Torgeir B. Andersen**

X2.94 EGU2016-6222 Wilson-cycle “kick-off”: Constraining the influence of a Large Igneous Province during the Neoproterozoic evolution of the pre-Caledonian margin of Baltica. By **Hans Jørgen Kjøll, Torgeir B. Andersen, Christian Tegner, Fernando Corfu, and Sverre Planke**

X2.95 EGU2016-6621 Hyperextension along the pre-Caledonian margin of the Iapetus? Age and origin of discontinuous gneiss sheets associated with deep-marine sediments, Alpine metaperidotites and detrital serpentinites. By **Johannes Jakob, Manar Alsaif, Fernando Corfu, and Torgeir B. Andersen**

X2.96 EGU2016-6774 Peak metamorphic temperatures from Raman Spectroscopy on Carbonaceous Matter (RSCM) and $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ (carb) isotope composition of a major mélange zone in the South Norwegian Caledonides. By **Johannes Jakob**, Olivier Beyssac, Philippe Boulvais, and **Torgeir B. Andersen**

X2.97 EGU2016-7176 Locating the Caledonian Deformation Front in the Western Barents Sea. By **Alexey Shulgin**, Iselin Aarseth, **Jan-Inge Faleide**, Rolf Mjelde, and Ritske Huismans

X2.103 EGU2016-16466 Structural development of the Jan Mayen microcontinent (JMMC): An update of its role during the rift transition from the Ægir Ridge to the Kolbeinsey Ridge, and effects on the formation of the Greenland-Iceland-Faroe ridge complex. By Anett Blischke, **Carmen Gaina**, John R. Hopper, Gwenn Peron-Pinvidic, Bryndis Brandsdóttir, Pierpaolo Guarneri, and Ögmundur Erlendsson

X2.105 EGU2016-4215 Barents Sea Paleozoic basement and basin configurations: Crustal structure from deep seismic and potential field data. By Iselin Aarseth, Rolf Mjelde, **Asbjørn Johan Breivik**, Ritske Huismans, and **Jan Inge Faleide**

Tue, 19 Apr, Talks

Room 1.61 09:45–10:00 EGU2016-9489 The impact of increased sedimentation rates associated with the decay of the Fennoscandian ice-sheet on gas hydrate stability and focused fluid flow at the Nyegga pockmark field, offshore mid-Norway. By Jens Karstens, Haflidi Haflidason, Lukas Becker, Hans Petter Sejrup, Christian Berndt, **Sverre Planke**, and Torbjørn Dahlgreen

Room L1 11:45–12:00 EGU2016-7253 Mantle flow influence on the evolution of subduction systems. By Maria Chertova, **Wim Spakman**, and **Bernhard Steinberger**

Room E1 12:15–13:15 EGU2016-1458 Arthur Holmes Medal Lecture by **Trond H. Torsvik**: **Earth Evolution and Dynamics**

Room G1 13:45–14:00 EGU2016-2674 Campaign-Style Titanite LASS: Implications for Crustal Flow, Phase Transformations and Titanite Closure. By Bradley R Hacker, Joshua M Garber, Andrew RC Kylander-Clark, and **Torgeir B Andersen**

Room 0.93 18:00–18:15 EGU2016-11517 Moon: Basin-Forming Impacts in Scale, Time, and as Thermal and Mass Input. By **Stephanie C. Werner**, Meng Hua Zhu, **Tobias Rolf**, and Kai Wünnemann

Tuesday 19 April Posters

N.11 EGU2016-12393 Detection and Origin of Hydrocarbon Seepage Anomalies in the Barents Sea. By Stephane Polteau, **Sverre Planke**, Lina Stolze, Bent E. Kjølhamar, and Reidun Myklebust

X1.269 EGU2016-12110 LUSI LAB: a multidisciplinary project in a natural active laboratory. By **Adriano Mazzini** and Lusi Lab Team

X1.271 EGU2016-368 Ground-based GPS monitoring at the Lusi eruption site and external perturbations. By **Alwi Husein, Adriano Mazzini**, Soffian Hadi, Bagus Santosa, Muhammad Charis, and Dwinata Irawan

X1.272 EGU2016-366 Combined geophysical surveys and coring data to investigate the pattern of the Watukosek fault system around the Lusi eruption site, Indonesia. By **Alwi Husein, Adriano Mazzini**, Matteo Lupi, Guillaume Mauri, Andreas Kemna, Soffian Hadi, and Bagus Santosa

X1.273 EGU2016-13163 Continuous multi-component geophysical experiment on LUSI mud edifice: What can we learn from it? By Guillaume Mauri, **Alwi Husein, Karyono Karyono**, Soffian Hadi, **Adriano Mazzini, Marine Collignon**, Maïté Faubert, Stephen A. Miller, and Matteo Lupi

X1.274 EGU2016-367 Monitoring and Characterizing the Geysering and Seismic Activity at the Lusi Mud Eruption Site, East Java, Indonesia. By **Karyono Karyono**, Anne Obermann, **Adriano Mazzini**, Matteo Lupi, Ildrem Syafri, Abdurrokhim Abdurrokhim, Masturyono Masturyono, and Soffian Hadi

X1.275 EGU2016-7525 A seismic network to investigate the sedimentary hosted hydrothermal Lusi system. By **Mohammad Javad Fallahi, Adriano Mazzini**, Matteo Lupi, Anne Obermann, and **Karyono Karyono**

X1.276 EGU2016-3495 The design of the multipurpose Lusi drone. When technology can access harsh environments. By Giovanni Romeo, Giuseppe Di Stefano, **Adriano Mazzini**, and Alessandro Iarocci

X1.277 EGU2016-3275 Photogrammetry surveys and mosaic: a useful tool to monitor active zones. Applications to the Indonesian Lusi eruption site. By Giovanni Romeo, Giuseppe Di Stefano, **Adriano Mazzini**, Alessandro Iarocci, and Antonio Caramelli

X1.278 EGU2016-5919 High resolution infrared acquisitions droning over the LUSI mud eruption. By Fabio Di Felice, Giovanni Romeo, Giuseppe Di Stefano, and **Adriano Mazzini**

X1.279 EGU2016-9270 Geochemical surveys in the Lusi mud eruption. By Alessandra Sciarra, **Adriano Mazzini**, Giuseppe Etiope, Salvatore Inguaggiato, **Alwi Hussein**, and Soffian Hadi J.

X1.280 EGU2016-13330 Isotopic and ion analysis of erupting Lusi water for constraints on numerical models. By Maïté Faubert, Reza Sohrabi, Guillaume Mauri, **Adriano Mazzini**, and Stephen Miller

X1.281 EGU2016-16421 Constraining the thermal structure beneath Lusi: insights from temperature record in erupted clasts. By Benjamin Malvoisin, **Adriano Mazzini**, and Stephen Miller

X1.282 EGU2016-9200 Lusi mud eruption and its connection with petroleum systems of East Java. By Nikolay Evdokimov, **Adriano Mazzini**, and Elena Poludetskina

X1.283 EGU2016-16583 Microbiology and geochemistry of hydrocarbon-rich sediments erupted from the deep geothermal Lusi site, Indonesia . By Martin Krüger, Nontje Straten, **Adriano Mazzini**, Georg Scheeder, and Martin Blumenberg

X1.284 EGU2016-17105 Challenges modeling clastic eruptions: applications to the Lusi mud eruption, East Java, Indonesia. By **Marine Collignon**, Daniel Schmid, and **Adriano Mazzini**

X1.285 EGU2016-7149 Fluid flow modeling at the Lusi mud eruption, East java, Indonesia. By **Marine Collignon**, Daniel Schmid, and **Adriano Mazzini**

X2.89 EGU2016-9911 Palaeomagnetic results from the Palaeozoic of Istanbul: A hypothesis for Remagnetization. By Nalan Lom, **Mathew Domeier**, Semih Can Ülgen, Turgay İşseven, and Ali Mehmet Celal Şengör

X2.126 EGU2016-3239 The formation of post-spreading volcanic ridges in the South China Sea. By Minghui Zhao, Jean-Claude Sibuet, Enyuan He, **Pingchuan Tan**, Jian Wang, and Xuelin Qiu

X2.176 EGU2016-12961 Characterization of depositional age and structure of sedimentary successions by U-Pb TIMS and LA-ICP-MS dating of volcanic horizons and detrital zircons: an example from the western Trondheim Nappe Complex, Scandinavian Caledonides. By Deta Gasser, Tor Grenne, **Fernando Corfu**, and **Lars Eivind Augland**

X2.209 EGU2016-6755 Global correlation of lower mantle structure and past subduction. By **Mathew Domeier**, **Pavel Doubrovine**, **Trond Torsvik**, **Wim Spakman**, and **Abigail Bull**

X2.215 EGU2016-15198 Subduction History and the Evolution of Earth's Lower Mantle. By **Abigail Bull**, **Grace Shephard**, and **Trond Torsvik**

X4.35 EGU2016-2632 Effect of fjord geometry on tidewater glacier stability. By Henning Åkesson, Kerim H. Nisancioğlu, and Faezeh M. Nick

Wednesday, 20 Apr, Talks

Room E1 09:30–10:00 EGU2016-11150 The role of igneous and metamorphic processes in triggering mass extinctions and Earth crises. By **Henrik Svensen**, **Sverre Planke**, **Alexander G. Polozov**, **Dougal Jerram**, and **Morgan T. Jones**

Room M2 13:45–14:00 EGU2016-15068 Subsurface geology of the Lusi region: preliminary results from a comprehensive seismic-stratigraphic study. By Andrea Moscariello, Damien Do Couto, Matteo Lupi, and **Adriano Mazzini**

Room M2 14:00–14:15 EGU2016-4485 3D Geological Model for “LUSI” - a Deep Geothermal System. By Reza Sohrabi, Gunnar Jansen, **Adriano Mazzini**, Boris Galvan, and Stephen A. Miller

Room M2 14:15–14:30 EGU2016-9436 The Geothermal Systems along the Watukosek fault system (East Java, Indonesia):The Arjuno-Welirang Volcanic Complex and the Lusi Mud-Eruption. By Salvatore Inguaggiato, **Adriano Mazzini**, Fabio Vita, and Alessandra Sciarra

Room M2 14:30–14:45 EGU2016-360 Analysis of Focal Mechanism and Microseismicity around the Lusi Mud Eruption Site, East Java, Indonesia. By **Karyono Karyono**, Anne Obermann, **Adriano Mazzini**, Matteo Lupi, Ildrem Syafri, Abdurrokhim Abdurrokhim, Masturyono Masturyono, and Soffian Hadi

Room M2 14:45–15:00 EGU2016-11129 The Lusi eruption and implications for understanding fossil piercement structures in sedimentary basins. By **Henrik Svensen**, **Adriano Mazzini**, **Sverre Planke**, and Soffian Hadi

Room G1 16:00–16:15 EGU2016-9390 Cretaceous subduction in the Pyrenees: Iberian plate-kinematics in a mantle reference frame. By Reinoud Vissers, Douwe van Hinsbergen, Douwe van der Meer, and **Wim Spakman**

Room 0.93 18:00–18:15 EGU2016-11517 Moon: Basin-Forming Impacts in Scale, Time, and as Thermal and Mass Input. By **Stephanie C. Werner**, Meng Hua Zhu, **Tobias Rolf**, and Kai Wünnemann

Room L7 18:00–18:15 EGU2016-16623 A gallery of oil components, their metals and Re-Os signatures. By **Holly J Stein** and **Judith L Hannah**

Wednesday 20 April Posters

X1.157 EGU2016-3563 Global temperature response to century-scale degassing from the Siberian Traps Large Igneous Province. By **Frode Stordal**, **Henrik Svensen**, Marco Roscher, and Ingrid Aarnes

X1.158 EGU2016-4024 Volcano-climate interactions during the PETM and U-Pb dating from the Fur Formation, Denmark. By **Morgan Jones**, **Lars Augland**, **Henrik Svensen**, Christian Tegner, **Sverre Planke**, and Pi Willumsen

X1.162 EGU2016-6788 Chemo- and palyno-stratigraphy of the Permian-Triassic transition in the Boreal region. By Els van Soelen, **Sverre Planke**, **Henrik Svensen**, Richard Twitchett, **Alexander Polozov**, and **Wolfram Kürschner**

X1.163 EGU2016-6899 The Carnian (Late Triassic) carbon isotope excursion: new insights from the terrestrial realm. By Charlotte Miller, **Wolfram Kürschner**, Francien Peterse, Viktoria Baranyi, and Gert-Jan Reichart

X1.164 EGU2016-7468 Geochemistry of Central Atlantic Magmatic Province (CAMP) sills from deep boreholes in the Amazonas and Solimões basins, Brazil. By **Thea Hatlen Heimdal**, **Henrik H.Svensen**, Egberto Pereira, and **Sverre Planke**

X1.165 EGU2016-10027 Coring and High-Resolution Imaging of the Permian-Triassic Boundary in Deltadalen, Svalbard. By **Sverre Planke** and the Deltadalen Drilling Team

X1.166 EGU2016-12468 Assessing the volcanic styles of the North Atlantic Igneous Province and their potential implications for the PETM. By **Dougal Jerram**, Peter Reynolds, **Morgan Jones**, **Henrik Svensen**, **Sverre Planke**, John Millett, Olivier Galland, **Syahreza Angkasa**, Nick Schofield, and John Howell

X1.170 EGU2016-13553 3D structure and formation of hydrothermal vent complexes in the Møre Basin. By **Sigurd Kjoberg**, Tobias Schmiedel, **Sverre Planke**, **Henrik H. Svensen**, Oliver Galland, and **Dougal A. Jerram**

X1.171 EGU2016-14744 The Aptian oceanic anoxic event (OAE1a) in Svalbard and the age of the Barremian-Aptian boundary. By Ivar Midtkandal, **Henrik Svensen**, **Sverre Planke**, **Fernando Corfu**, Stephane Polteau, **Trond Torsvik**, **Jan Inge Faleide**, Sten-Andreas Grundvåg, Håvard Selnes, and Snorre Olaussen

X1.172 EGU2016-14883 Constraining the onset of flood volcanism in Isle of Skye Lava Field, British Paleogene Volcanic Province. By **Syahreza Angkasa**, **Dougal.A. Jerram**, **Henrik Svensen**, John M. Millet, Ross Taylor, and **Sverre Planke**

X1.174 EGU2016-15516 Evaluating the provenance of Permian-Triassic and Palaeocene-Eocene ash beds by high precision U-Pb and Lu-Hf isotopic analyses of zircons: linking local sedimentary records to global events. By **Lars Eivind Augland**, **Morgan Jones**, **Sverre Planke**, **Henrik Svensen**, and Christian Tegner

X1.345 EGU2016-5505 3-D velocity model for Norway on-shore and off-shore. By Ilma Janutyte, Lars Ottemoller, Jan Michalek, Conrad Lindholm, **Johannes Schweitzer**, Steven J. Gibbons, and Tormod Kvaerna

X2.248 EGU2016-9188 Andean flat subduction maintained by slab tunnelling. By Gerben Schepers, Douwe van Hinsbergen, Martha Kosters, Lydian Boschman, Nadine McQuarrie, and **Wim Spakman**

X2.305 EGU2016-8321 Geophysical constraints on geodynamic processes at convergent margins: A global perspective. By Irina Artemieva, Hans Thybo, and **Alexey Shulgin**

X3.10 EGU2016-2874 The Origin of the Rodrigues Depth Anomaly: New constraints from integrated gravity inversion. By **Alexander Minakov**, **Carmen Gaina**, and **Jan Inge Faleide**

Wednesday 20 EGU2016 Awards Ceremony Room: E1 17:30 to 19:00

17:40–17:50 The EGU2015 Outstanding Student Poster (OSP) Awardees: including **Hans Jørgen Kjøll**

17:50–17:55 The EGU2016 Division Outstanding Young Scientist Awardees:

17:55–18:05 The EGU2016 Division Medallists: including the Arthur Holmes medal to **Trond H. Torsvik**

18:05–18:20 The EGU2016 Arne Richter Awards for Outstanding Young Scientists:
including **Grace Shephard**

Thursday 21 April Talks

Room G2 11:00–11:15 EGU2016-6977 Slab dragging and the recent geodynamic evolution of the western Mediterranean plate boundary region. By **Wim Spakman**, Maria V. Chertova, Arie P. van den Berg, Cedric Thieulot, and Douwe J.J. van Hinsbergen

Room 0.49 14:00–14:15 EGU2016-3893 Multiple causes of the Younger Dryas cold period: new insights from coupled model experiments constrained by data assimilation. By Hans Renssen, Aurélien Mairesse, Hugues Goosse, Pierre Mathiot, Oliver Heiri, Didier M. Roche, **Kerim H. Nisancioglu**, and Paul J. Valdes

Room G2 15:30–15:45 EGU2016-9231 Tectonic evolution and paleogeography of the Kırşehir Block and the Central Anatolian Ophiolites, Turkey. By Douwe J. J. van Hinsbergen, Marco Maffione, Alexis Plunder, Nuretdin Kaymakci, Morgan Ganerød, Bart Hendriks, **Fernando Corfu**, Derya Gürer, Giovanni de Gelder, Kalijn Peters, Peter McPhee, Fraukje Brouwer, Eldert Advokaat, and Reinoud Vissers

Room 0.31 16:15–16:30 EGU2016-3771 Evaluation of summer precipitation from EURO-CORDEX fine-scale RCM simulations over Norway. By Anita Verpe Dyrrdal, **Frode Stordal**, and Cristian Lussana

Thursday 21 April Pico

13:30–15:00 PICO spot 2 EGU2016-799 Numerical Modelling of multi-stage basin inversion in the western Barents Shelf. By Muhammad Armaghan Faisal Miraj, Christophe Pascal, **Roy H. Gabrielsen**, and **Jan Inge Faleide**

Thursday 21 April Posters

X1 EGU2016-4187 Oceanic crust formation in the Egeria Fracture Zone Complex (Central Indian Ocean). By **Marine Le Minor**, **Carmen Gaina**, Karin Sigloch, and **Alexander Minakov**

X2.32 EGU2016-9775 Three-dimensional instantaneous dynamics modeling of present-day Aegean subduction. By Anne Glerum, **Wim Spakman**, Cedric Thieulot, Douwe van Hinsbergen, Casper Pranger, and Menno Fraters

X2.52 EGU2016-11205 Non-robust numerical simulations of analogue extension experiments. By John Naliboff and **Susanne Buitner**

X2.53 EGU2016-4791 A discussion of numerical subduction initiation. By **Susanne Buitner** and Susan Ellis

X3.59 EGU2016-3395 Greenland ice sheet melting during the last interglacial. By Petra M. Langebroek and **Kerim H. Nisancioglu**

X3.62 EGU2016-7942 Sea level rise from the Greenland Ice Sheet during the Eemian interglacial: Review of previous work with focus on the surface mass balance. By Andreas Plach and **Kerim Hestnes Nisancioglu**

X3.69 EGU2016-13925 On the sea-ice cover of the Nordic Seas in an idealized MITgcm-setup. By Mari F. Jensen, Michael A. Spall, and **Kerim H. Nisancioglu**

X3.119 EGU2016-5873 Dynamical vegetation-atmosphere modelling of the boreal zone. By Hui Tang, **Frode Stordal**, Terje K Berntsen, and Anders Bryn

Friday 22 April Talks

Room G1 09:45–10:00 EGU2016-13613 Structure and Temperature Configuration of the Barents Sea and Kara Sea region and implications for its lithospheric strength. By Peter Klitzke, Magdalena Scheck-Wenderoth, Sebastien Gac, **Jan Inge Faleide, Alexander Minakov**, and Judith Sippel

Room G1 10:30–10:45 EGU2016-2126 Waveform Tomography of the North Atlantic Region. By Nicolas Luca Celli, Sergei Lebedev, Andrew Schaeffer, and **Carmen Gaina**

Room 2.20 11:00–11:15 EGU2016-8823 A mechanical model for giant radiating dike swarms. By **Alexander Minakov**, Viktoriya Yarushina, and **Jan Inge Faleide**

Room G1 10:45-11:15 EGU2016-1532 Integrating surface and mantle constraints for palaeo-ocean evolution: a tour of the Arctic and adjacent regions (Arne Richter Award for Outstanding Young Scientists Lecture) (solicited) Grace E. Shephard

Room -2.20 14:30–14:45 EGU2016-1362 Atmospheric infrasound propagation modelling using the reflectivity method with a direct formulation of the wind effect. By Valerie Maupin, Sven Peter Näsholm, **Johannes Schweitzer**, and Steven J. Gibbons

Room E2 15:30–15:45 EGU2016-14833 The volcanic double event at the dawn of the Dark Ages. By Matthew Toohey, Michael Sigl, Kirstin Krüger, **Frode Stordal**, and **Henrik Svensen**

Friday 22 April Posters

A.295 EGU2016-13200 The fate of gas hydrates in the Barents Sea and Kara Sea region. By Peter Klitzke, Magdalena Scheck-Wenderoth, Judith Schicks, Manja Luzi-Helbing, Mauro Cacace, Antoine Jacquey, Judith Sippel, and **Jan Inge Faleide**

X2.61 EGU2016-9753 Arc-continent collision in numerical models. By Joya Tetreault and **Susanne Buiter**

X2.114 EGU2016-9783 (U-Th)/He Ages of Detrital Zircons From Paleozoic Strata of the Severnaya Zemlya Archipelago (Russian High Arctic): implication for testing the different tectonic models. By Victoria Ershova, Owen Anfinson, Andrei Prokopiev, Andrei Khudoley, Daniel Stockli, **Jan Inge Faleide, Carmen Gaina**, and Nikolay Malyshev

X2.121 EGU2016-15552 Comparison of publically available Moho depth and crustal thickness grids with newly derived grids by 3D gravity inversion for the High Arctic region. By **Nina Lebedeva-Ivanova**, **Carmen Gaina**, **Alexander Minakov**, and Sergey Kashubin

X2.122 EGU2016-15582 Lithospheric thermal and strength model of the Arctic region. By Maartje Struijk, Magdala Tesauro, **Nina Lebedeva-Ivanova**, Fred Beekman, **Carmen Gaina**, and Sierd Cloetingh

X2.123 EGU2016-8377 Understanding lithospheric stresses in Arctic: constraints and models. 15552. By **Sergei Medvedev**, **Alexander Minakov**, **Nina Lebedeva-Ivanova**, and **Carmen Gaina**

X2.124 EGU2016-3213 Ultraslow spreading, ridge relocation and compressional events in the East Arctic region: A link to the Eurekan orogeny? By **Carmen Gaina**, Anatoly M. Nikishin, and Evgeni I. Petrov