SPLG2017 - TECHNICAL PROGRAM

**Sunday 4th June**

17:30 - 19:30  Welcome Reception

**Monday 5th June**

8:00 – 9:15  Registration

**Opening Ceremony**

**Chairman: Giovanni Mercurio - Joint Research Centre – EU**

9:15 – 9:25  Introduction  
**G. Mercurio** - Nuclear Security Unit – Joint Research Centre – EU

9:25 – 9:40  Welcome Address  
**M. Betti** - Director of Directorate G - Nuclear Safety and Security - Joint Research Centre – European Commission - Karlsruhe

9:40 – 10:05  History of SPLG workshops  
**H.G.Wood** – University of Virginia - USA

10:05 – 10:30  JRC contributions towards enhancing Safeguards for Gas Centrifuge Enrichment Plants  
(*)Head of Department Nuclear Security and Safeguards - Joint Research Centre - European Commission – Ispra

10:30 – 10:50  Coffee break

10:50 – 11:25  Heavy water separation – Keynote lecture  
**S. Villani** - Former Director General of JRC Bruxelles and CISE Milan

Session 1 Centrifugation I

**Chairman: Houston Wood - University of Virginia – USA**

11:25 – 11:50  Evaluation of the effectiveness of dilution of the reprocessed with depleted uranium of various compositions in a gas centrifuge cascade  
**A.Yu. Smirnov**, V.A. Gusev, G.A. Sulaberidze, A.R. Mustafin - MEPi - Russia  
A.A. Dudnikov, V.A. Nevinitsa - Kurchatov Institute – Russia

11:50 – 12:15  Static hydraulic properties of gas centrifuges  
**S.Zeng**, Y.N.Zhang, D.J.Jiang - Tsinghua University - China  
V.D. Borisevich, A.Yu. Smirnov, G.A. Sulaberidze - MEPi - Russia
12:15 – 14:00  Lunch

14:00 – 14:25  Purification of the reprocessed uranium in double cascades with feeding point shift  
**E.V. Masliukov, V.A. Palkin** - Ural Federal University - Russia

14:25 – 14:50  Numerical simulation of the secondary circulation in a hypersonic rotational flow-field  
**Y. Sheng, N. Ling, C. Zhou, Y. Wang, X. Lu** - Tianjin Institute of Chemical and Physical Engineering - China

14:50 – 15:15  The Separative Power of the Optimized Iguassu Gas Centrifuge in Multidimensional Space of Parameters  
**S.V. Bogovalov, V.D. Borisевич, V.D. Borman, I.V. Tronin, V.N. Tronin.** – MEPhI – Russia

15:15 – 15:50  Photo and Coffee break

**Session 2  Centrifugation II**  
**Chairman: Sylvana Presti Migliavacca** - CTMSP – Brasil

15:50 – 16:15  Evaluation of the separation parameters for a long-bowl gas centrifuge using cut as the basis  
**C.G. du Toit** - North-West University - South Africa, **G. Mercurio** - JRC EU

16:15 – 16:40  Research on pumping performance of Holweck pump  
**N. Ling, Y. Sheng, D. Jiang, L. Jiang, C. Zhou, Y. Wang, X. Lu, X. Li** - Research institute of physical and chemical engineering of nuclear industry - China

16:40 – 17:05  Study on gas flow characteristics of double-faced disk-type molecular drag pump  
**G. Pei, M. Zhou, D. Jiang** - Tsinghua University – China

17:05 – 17:30 (t.b.c)  The generalized analytical model and DSMC simulations of high-speed rotating flow in polar (r-θ) coordinate  
**S. Pradhan** - Bhabha - Atomic Research Centre – India
Tuesday 6th June

Session 3 Stable Isotopes
Chairman: Pierre Louvet - CEA - France

9:00 – 9:35 Stable isotopes enrichment at Urenco Nederland: 25 years of development and progress – Keynote lecture
A.J.L. Bos - URENCO - Nederland

9:35 – 10:10 Isotopically modified materials. Status and perspectives - Keynote lecture
V.D. Borisevich - MEPhl - Russia

10:10 – 10:35 Effective production of isotopically modified molybdenum by gas centrifuge cascades for nuclear power plants
S. Zeng, D. Jiang - Tsinghua University - China

10:35 – 10:55 Coffee break

Session 4 Laser Isotope separation I
Chairman: Pascal Lemaire CEA France

10.55 – 11:20 Important MLIS kinetics relations
J.W. Eerkens – Neutrek – USA

11:20 – 11:45 Atomic spectroscopy of dysprosium aiming isotopic enrichment via lasers
J. Jakutis, J. W. Neri, B, K. K. Yum, M. G. Destro – Instituto de Estudos Avançado (IEAv) - Brasil

11:45 – 12:10 Theoretical investigation of cluster-formation dynamics in supersonic jets

12:10 – 14:00 Lunch

14:00 – 14:25 $^{132}$Sn extraction estimation at the Selective Production of Exotic Species (SPES) facility in Laboratori Nazionali di Legnaro
D. Scarp, E. Mariotti, P. Nicolosi, A. Tomaselli, A. Monetti, A. Andrighetto, S. Corradetti, F. Borgna, M. Manzolari, M. Rossignoli, M. Ballan, L. DeRuvo, G. Prete - INFN – Italy
14:25 – 14:50 Laser isotope separation of calcium

**H. Niki, K. Teranishi, T. Fujita, K. Hashizume, Y. Ezaki** – University of Fukui – Japan

14:50 – 15:15 A simplified theoretical model of the light induced drift of atoms

**L. Wang** – Tsinghua University - China

15:15 – 15:35 Coffee break

**Session 5 Laser Isotope separation II**

**Chairman: Valentin Borisevich** – MEPhI - Russia

15:35 – 16:00 Laser-induced breakdown spectroscopy of dysprosium vapor generated by laser ablation

**J. Jakutis, J. W. Neri, B. Christ, K. K. Yum, M. G. Destro** – Instituto de Estudos Avançados (IEAv) – Brazil

**J. R. dos Santos, P. Bueno, N. A. S. Rodrigues** - Instituto Tecnológico da Aeronáutica (ITA) - Brazil

16:00 – 16:25 Isotopic separation of SF₆ in pulsed free jet beams induced by CO₂ lasers


16:25 – 16:50 Laser induced fluorescence applied to rare-earth isotope spectroscopy in atomic jets

**J. Jakutis, J. W. Neri, B. Christ, K. K. Yum, E. R. Rosa, C. A. B. Silveira, M. G. Destro** Instituto de Estudos Avançados (IEAv) - Brazil

**J. R. dos Santos, P. Bueno, M. E. Sbampato, Instituto Tecnológico da Aeronáutica (ITA) - Brazil

20:00 – 23:30 Conference Banquet
Wednesday 7\textsuperscript{th} June

Session 6 Centrifugation III
Chairman: Shi Zeng – Tsinghua University - China

9:00 – 9:25  Multistage compression for gas centrifuge
\textit{V.I.Tokmantsev} - Ural Federal University - Russia

9:25 – 9:50  On reasons of lack of consistent theory of multicomponent separation potential
\textit{G.A. Sulaberidze, A.Yu. Smirnov, V.D. Borisevich} – MEPhI - Russia

9:50 – 10:15 Transient analysis of gas centrifuge cascade plants in normal and off - normal conditions
\textit{G. Mercurio} – JRC – EU
A. Deponti Enginsoft Srl - Italy

10:15 – 10:35  Coffee break

10:35 – 11:00  Equation of solvated ion oscillation in the solution influenced by periodic external electric field and solvated ion’s oscillations own frequencies
\textit{I.V. Shamani}, \textit{National Research Tomsk Polytechnic University} – Russia
\textit{M.A. Kazaryan} Lebedev Physical Institute Russian Academy of Sciences – Russia

11:00 – 11:25  The potential for a passive online UF\textsubscript{6} enrichment monitor
A.M. Shephard University of Tennessee - USA
B.R. Thomas, \textit{H.G. Wood} - University of Virginia,

11:25 – 11:50  Numerical Study on Decay of Endcap Drive in a Rotating Cylinder
\textit{D. Jiang}, Z. Gu, V. D. Borisevich, S. Zeng - Tsinghua University - China

11:50 – 12:15 Study on the centrifugal separation of non-isotopic gas mixture
\textit{J. Pan}, M. Zhou, G. Pei - Tsinghua University – China

12:15 – 14:00  Lunch

14:30 – 17:30  Conference tour to the islands

20:00 – 23:00  International Organizing Committee Meeting
Thursday 8th June

Session 7 Non Proliferation
Chairman: Alberto Lamagna CNEA Argentina

9:00 – 9:25 Why civil isotopic enrichment by laser could be diverted to proliferation?
**P. Lemaire** – CEA – France

9:25 – 9:50 Use of laser scanners and laser distance sensors to support safeguards activities at gas centrifuge enrichment plants
**P. Richir** Ph. Buchet, Z. Dzbikowicz, L. Dechamp – JRC – EU

9:50 – 10:15 Minor isotope safeguards techniques (MIST): analysis and visualization of gas centrifuge enrichment plant process data using the MSTAR model
**A.M.Shephard, J.B.Coble** - University of Tennessee - USA
**H.G.Wood, B.R.Thomas** - University of Virginia - USA

10:15 – 10:35 Coffee break

10:35 – 11:00 Export control requirements for uranium enrichment
**F. Sevini** – JRC - EU

11:00 – 11:25 Meeting the nonproliferation challenges of uranium enrichment technology
**J. M. Whitaker** - Oak Ridge National Laboratory -USA

11:25 – 11:50 A systems thinking approach to open source information analysis for nuclear non-proliferation
**G. Renda** - JRC - EU

11:50 – 14:00 Lunch

Closing Ceremony
Chairman: Giovanni Mercurio – JRC - EU

14:00 – 15:00 Report of the IOC committee
Next meeting announcement
Round table Discussion

15:00 – 15:30 Coffee break
Friday 9th June

7:45 – 15:30  Technical visit – Joint Research Centre - Ispra Premises