

Contact Expert Group on ISTC Transmutation related Projects

Annual Meeting 2006
January 30-31, 2006
Brussels

Curt Mileikowsky – 1923-2005

A man of many interest and a good friend of mine, one of the founder of this CEG



In last years we lost some more of our good collaborators

- B.P. Murin, Moscow, project manager of # 1653
- E. Efimov, Obninsk, project manager of #559
- V. Barashenkov, Dubna, one of grandfathers of SAD
- Y. Shubin, Obninsk, co-coordinator of the project #1372



CEG-Meeting, Brussels 2006

Agenda - 1

Place: **EC, Building CDMA, 21, rue de Champs de Mars, 1050 Brussels**

January 30: Meeting Room SDR4 (Floor: 0)

January 31: Room 03/102 (Floor: 3)

Monday, January 30

10:30 – 10:40 Welcome and local arrangements – **V. Bhatnagar**

10:40 – 11:00 Introduction and Annual Report presentation - **W. Gudowski**

11:00 – 12:00 Presentation of the present ISTC policy, interactions with CEG + more –
Jürgen Sanders

12:00 – 12:30 IAEA activities in transmutation field – **Alexander Stanculescu**

12:30 - 13:00 Experiences from other CEG's, possibilities of closer collaboration –
Michel Hugon, Lev Tocheny

13:00 – 14:30 Lunch

14:30 - 16:00 General overview of the ISTC projects collaborating with the 6th EU Frame Programme projects. Part I (in particular projects #1606, #2002, #2048, #2680, #3266 + more) Recently approved projects and projects waiting for evaluations/approvals.

**Attention for Project #3266: only short information at this time.
Special topic on the agenda on Tuesday, Jan. 31.**

V. Ignatiev, Y. Titarenko, W. Gudowski, V. Bhatnagar

16:00 – 16:20 Coffee break

Agenda - 2

Monday, January 30

Collaborator reports on specific ISTC projects:

16:20 -17:40 Status of the SAD (#2267) and Yalina (B70) projects. In particular collaboration and funding issues. Reports from the SAD/YALINA Steering Committee meetings and ECATS meetings. Strategy for other “supporting” projects

C. Broeders, V. Shvetsov, H. Abderrahim, W. Gudowski,
E. Gonzalez

17:40 – 18:20 Discussion

18:20 ADJOURN

Evening: dinner together following suggestions of our EC-hosts,

Agenda - 3

Tuesday, January 31

9:00 – 11:00 **Continuation of the CEG main topics**

14:00-17:00 **Review of the Projects #2578 and # 3266; “Kick off” of these projects**

9:00 – 9:20 Review and ranking of the projects in the pipeline – [W. Gudowski + all](#)

9:20 – 11:00 **Working plan for 2006-2007:**

9:20 – 10:00 Broadening of the CEG scope

9:20 – 9:50 Partitioning related projects at RIAR and short overview of Russian Partitioning program – [A. Bychkov + L. Tocheny](#)

9:50 – 10:00 Discussion

10:00-10:45 *Collaboration between CEG, ISTC office and ISTC Secretariat and Strategy for further integration of the ISTC projects with the European FP projects - V. Bhatnagar, , J. Sanders, L. Tocheny, W. Gudowski*

Introduction of [W. Gudowski](#) (5 min.)

*EU Framework programs and ISTC – seeking a synergy and long term strategy: [V. Bhatnagar](#) (continuation of our on-going discussion since some time – **25 min.**)*

ISTC perspective: [J. Sanders](#) (15 min)

10:45-10:55 *Discussion*

10:55-11:05 *Revitalization of the collaboration with USA, Japan and S. Korea – W. Gudowski and all*

11:05-11:20 **Coffee break**

11:20 -11:40 Action Plan for 2006

11:40 -13:00 **CEG-Kick-off of the Project # 3266 – [Y. Titarenko, V. Batyaev.](#)**

13:00 - 14:00 **Lunch**

Agenda - 3

Tuesday, January 31

14:00-17:00 *Review of the Projects #2578 and # 3266; “Kick off” of these projects*

14:00 – 14:30 Discussion and recommendations for # 3266 – H. Abderrahim

14:30 – 16:00 **Summary of the Project # 2578:** “Transmutation of radioactive nuclear waste – present status and requirement for the problem – oriented nuclear data base. Approach to scheduling the experiments (reactor, target, blanket)” - Yu. Korovin

16:00-16:20 **Coffee Break**

16:20 – 16:40 Discussion on #2578 and recommendations – E. Gonzalez

16:40 – 17:00 Miscellaneous

17:00 **Adjourn**

Short History of the CEG

Contact Expert Group for ISTC Transmutation related projects - so called ADS CEG has been officially established in January 1998 during a meeting in Brussels. It was an initiative based on the Swedish experiences from the time when Sweden was an individual funding party of the International Science and Technology Centre and yet a member of the European Union.

After some discussions between **Didier Gambier** (EU), **Steve Gitomer** (USA) and **Waclaw Gudowski** (KTH, Sweden) an idea of a Contact Expert Group got very soon the support of the scientific, “transmutation” community.

After meeting in Brussels and after intensive and fruitful discussions it was agreed: what to do and how to build a collaboration network. Rules for CEG were later formalised in the CEG White Paper, which was for the first time written down during the meeting in Cadarache. In Brussels - 98 we could see participation of the industrial partners from USA (Tony Favale and Mario Carelli). The industrial interest in transmutation weakened with time when it became clear that the time perspective and economical prospects are out of the short-time scale.

Waclaw Gudowski was elected to be a chairman of the Group and Mario Carelli became a secretary. Then Michel Hugon was elected as a secretary

Short History – “Plenary” Meetings

- 1998 – Brussels
- 1999 – Cadarache
- 2000 – Seoul
- 2001 – Stockholm, CEG is becoming more and more European, following very fruitful collaboration with the European Projects in the 5th and 6th FP
- 2002 – Karlsruhe
- 2003 – Brussels
- 2004 – Brussels
- 2006 - Brussels

Support meetings

- Obninsk – series of meetings related to the project #559 and #1372 (1998, 2000, 2001)
- Snezhinsk – 2001 and 2004 (“stormy” meeting of the project # 1606)
- St. Petersburg, Project #2048 (2002), #2068 (2003)
- A number of meetings in Moscow and Dubna, Projects # 1372 and SAD #2267 (1998, 2000, 2002, 2004, 2005)
- Minsk, Yalina - #B70 related meetings (2000, 2003, 2004, 2005)
- Yerevan, 1998 Project #A131

White Paper – defines mode of operation of the CEG – update 2003

ISTC Contact Expert Group (**CEG**) on Nuclear Transmutation related research provides the venue for experts from the funding parties to shape up the policy and to formulate a common approach for soliciting, prioritising and directing the efforts of ISTC-funded projects. **CEG** provides the framework and opportunity for building a lasting co-operation between laboratories and research groups from ISTC funding countries and the laboratories of recipient countries (Russia and CIS-countries).

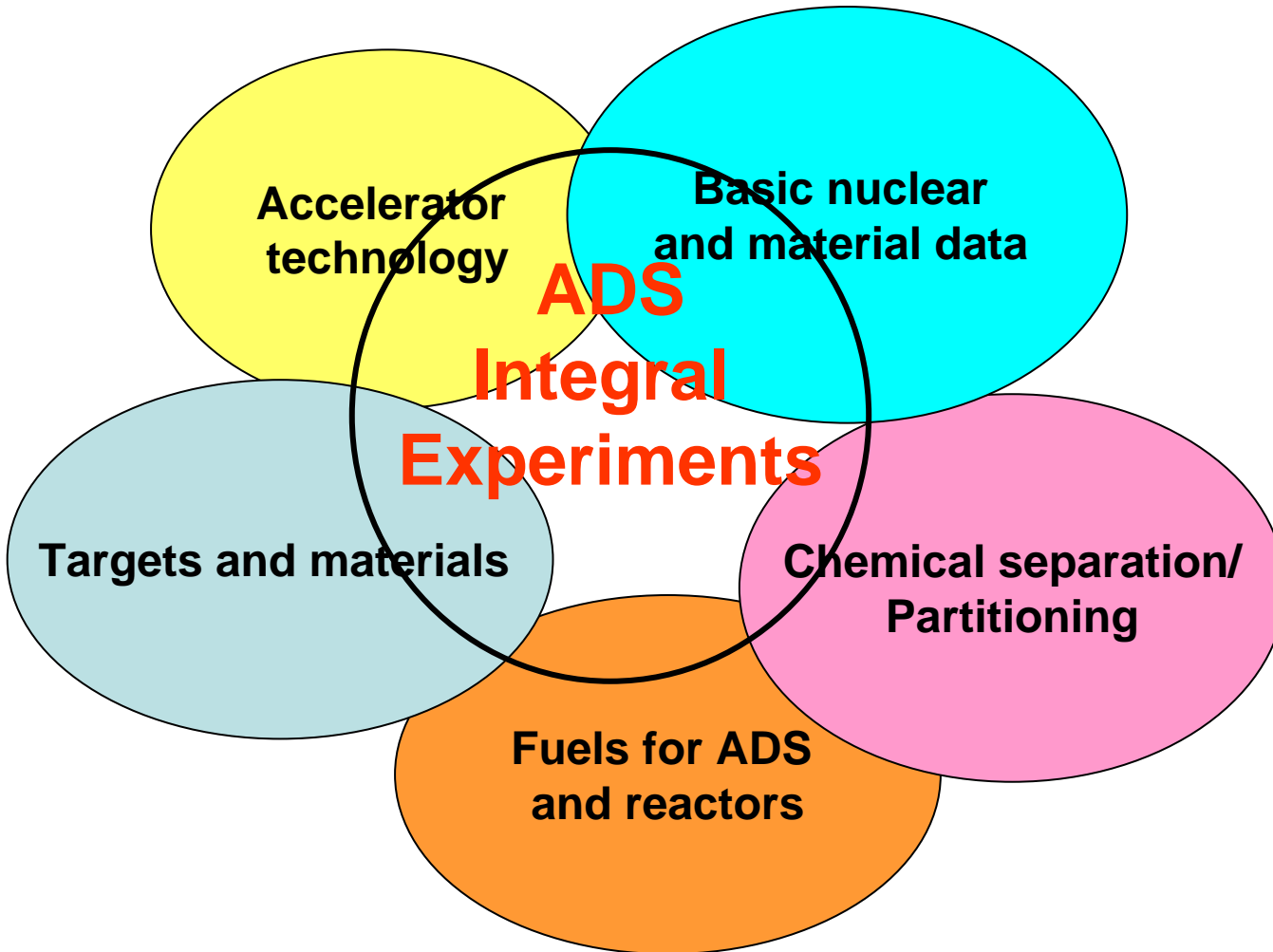
CEG, based on expertise of its members and their involvement in reviewing ISTC projects, has identified five major areas where projects are soliciting. These areas are:

- Accelerator technology
- Basic nuclear and material data and neutronics of ADS and reactor based transmutation systems
- Targets and materials including basic material data.
- Fuels related to ADS and reactor based transmutation systems
- Chemical separation

CEG considers these five areas equally important and foresees that available funding will be divided roughly equally among these areas.

CEG is expecting that all the projects submitted to ISTC in these 5 areas will be forwarded to the CEG chairman for consideration. CEG will review the projects and will recommend the priority for approval and level of funding. The priorities of projects will be set to: **high, medium, low** or **not recommended**.

CEG – Area of interest



The biggest achievements of CEG

- Very good collaboration with the EC, in particular DG12/DG Research, and ISTC office
- Establishing really good platform of LASTING collaboration with over **40 ISTC projects in Russia, Ukraine and Belarus**
- Successful integration of many projects into collaboration with European projects as well as bilateral contacts
 - Spectacular success of the "spallation target project" for the first time a very big device was exported from Russia and consequently – FREE OF COSTS TRANSFER OF INTERESTING Pb/Bi technology:
 - 3 major European facilities have been built based on this project: KALLA facility at FZK, CIRCE in Brasimone and TALL in Stockholm
 - European MEGA-PIE project is "a child" of this ISTC project

The biggest achievements of CEG

- Very successful collaboration in nuclear data field, a lot of synergy and efficiency achieved
- Nuclear fuel collaboration – an advanced nuclear nitride fuel experiments of big interest for European partners
- Series of unique monographies !

The biggest "non-technical" achievements of CEG

- Very trustful collaborative atmosphere, even with the most "closed" labs: Arzamas, Chelyabinsk, Obninsk. Good insight for European partners into these labs (even if not without some sparks)
- A large step towards regular scientific and technical collaboration and exchange, a good starting point for further development into full integration to FPs
- Excellent collaboration with EC and ISTC office in Moscow

Important Additional Initiative of CEG aside of the White Paper Mission

- **SAD-Yalina Steering Committee. First meeting – July, 2004. Activity based on agreed Charter**
 - The purpose of the SAD/YALINA-B Steering Committee is the coordination of the ISTC projects with integral experiments with source-driven sub-critical systems and integration of those projects with the European ADS-related activities. Currently, the ISTC project #2267 (Sub-critical Assembly Dubna, SAD) and the #B070 successor experiment with lead booster (YALINA-B) are involved. Other experiments under consideration will be included if corresponding proposals for ISTC projects decision board will be prepared.
 - Chairman – C. Broeders, FZK, see his report

Important Additional Initiative of CEG aside of the White Paper Mission

- Very good collaboration with IAEA
 - Common CRP on Yalina and SAD
 - A lot of concerted actions on ADS
- National and partnership projects/programs between ISTC supported institutes and European institutes
 - KTH – Sosny
 - FZK – St. Petersburg/Obninsk
 - SCK-CEN – Obninsk/St. Petersburg

Stimulating exchange of students



CEG related ISTC Projects

- #554** - Measurements of the Fission Neutron Multiplicity Distribution in Spontaneous Fission of Cm-244, Cm-248 and in Fission of U-233 and Pu-239 Induced by Thermal and Low Energy Neutrons. Shpakov V I, Khlopin Institute. Collaborators – IRMM. Completed
- #839** - Experimental and Theoretical Study of the Yields of Residual Product Nuclei Produced in Thin Targets Irradiated by 100-2600 MeV Protons, Y. Tiaternko, ITEP. Completed.
- # 1145:** Nuclear-Physics Investigations Aimed at the Solution of Weapon Plutonium Conversion and Long-Lived Radioactive Wastes Transmutation Problems , E.F. Fomushkin, sarov. Completed. TENDL.
- #1486** – Experimental and Theoretical Justification of the Cascade Scheme of the Subcritical Molten-Salt Reactor for Transmutation of Long-Lived RW of the Nuclear Fuel Cycle. L.I. Ponomarev, Research Coordination Center on the Problem of Muon Catalyzed Fusion and Exotic Quantum Systems. Project approved by GB, March 16, 2000. Collaborators:Univ. of Birgham, Completed.
- #1606** – Experimental Mock-up of Molten Salt Loop of Accelerator-Based Facility for Transmutation of Radioactive Waste and Conversion of Military Plutonium. Stage 2: Experimental Study of Molten Salt Technology for Safe, Low-Waste and Proliferation Resistant Treatment of Radioactive Waste and Plutonium in Accelerator-Driven and Critical Systems. Zherebtsov/Ignatjev. VNIKChT, Kutchatov, High Temperature Electrochemistry Institute. Project approved by GB, March 16, 2000. On-going, applying for prolongation. Collaborators CEA, BNFL
- #1653** – Proton (ion) Linacs for Accelerator Driven Transmutation Technology (ADTT) (Monograph Edited by Professor Boris P. Murin). I.V. Shumakov, MRTI (Radio Techniques). KTH, CEA + more Project approved by GB, March 16, 2000. Completed
- #B404** – Actinide Nuclear Data Evaluation, V.M. Maslov, Sosny Institute. Project approved by GB, March 16 2000.. Completed

CEG related ISTC Projects

- # 1372: Complex Radiochemical and Activation Analysis of Long-life Nuclear Waste Transmutation in Fast Reactors and in the Beams of High Energy Accelerators - Transmutation effectiveness of nuclear waste, E. Ya. Smetanin, IPPE-JINR, KTH, FZK + more. Completed.
- # 1418: Lead cooled reactor with inherent safety. Monography. . A. Filin (NIKIET). Completed
- # 1749: Measurements of the cross sections of fast and resonance neutrons induced fission of minor actinides for their transmutation with accelerator-driven systems Fission cross sections for minor actinides. B.I. Fursov, IPPE. Pending, too expensive.
- # 1755: Experimental study of fast and fast-thermal accelerator driven systems on the basis of BFS-1 – microtron complex. B. Kochurov, ITEP, IPPE. Pending
- # 1828: Measurements of the Prompt Neutron Spectra of Minor Actinides. Fast Neutron Induced Fission of ^{241}Am and ^{243}Am , Thermal Neutron Induced Fission of ^{243}Cm . Leonard V. Drapchinsky, Khlopin. Funded by Japan. Completed
- # 1886: “Investigations of the irradiation and thermomechanical endurance of the beam window of ADS neutron generating target” , Yuri V. Konobeev Related to the project # 559. Pending.
- # 1971: Neutron Induced Fission Cross-Sections of Pu240, Am243 and W in the Energy Range 1 – 200 MeV. Oleg A. Shcherbakov, Gatchina – St. Petersburg Approved and completed. JAER/JNC

CEG related ISTC Projects

- # 2199: Neutron cross-sections in the resonance energy range and nuclear level densities for fission products, Th, ^{233}U . Boris V. Zhuravlev , IPPE.
- # 2257: Proton accelerator based intense source of radioactive ions for nuclear physics experiments. Not supported
- # 2267: Creation of Sub-critical Assembly Driven by Proton Accelerator (SAD).
V.Shvetsov, Dubna. FZK, KTH, CIEMAT, CEA. On-going.
- # 2299: Experimental and theoretical research of the basic parameters of interaction of intense relativistic nuclear beams with matter. Not supported

CEG related ISTC Projects -2003

Project Number	Shorttitle	Priority by CEG	Total cost k\$
1444	Liquid Electronuclear Target	4	93
2213	Fission Cross Sections of Tungsten Isotopes	17	200
2214	Innovative Reactor Concepts and Fuel Cycles	4	49.8
2253	Investigation of the delayed neutron characteristics	High	360
2264	Interaction of Ion Beams with Matter	3	350
2391	Carbon Materials for Nuclear Waste Storage and Transmutation	low	377
2405	Experimental Nuclear-Physics Data for Transmutation	16	595
2524	Nuclear data lib. for heavy nuclei	medium	204
2563	Induced radioactivity in heavy ions reactions	3	350
2578	Analysis of Radwaste Transmutation Data (Korovin)	High	80
2582	Minor Actinides Transmutation Study at Critical Assembly		50
2603	A Database of Critical Experiments	3	280
2604	Fission fragments angular measurements	low	296
2635	Nuclear Data Reactions Data Base for Internet	5	157
2661	Reactors with Lead coolant	unassessed	95
2680	Study of Minor Actinide Transmutation in Nitrides: modelling and measurements of out-of-pile properties - MATINE	18	400

CEG related ISTC Projects -2203

Project Number	Shorttitle	Priority by CEG	Total desired cost k\$
1251	Neutron- and heat- physical experiments with cylindrical targets bombarded with medium-energy protons	HIGH	255
1606	Experimental Mock-Up of Molten Salt Loop of Accelerator-Based Facility for Transmutation of Radioactive Waste and Conversion of Military Plutonium	HIGH	450
1749	Measurements of the fission X-sections of MA in fast and resonance neutrons (Furtsov)	MEDIUM	680 reduce to 400
2002	Experimental and theoretical studies of the yields of residual product nuclei produced in thin Pb and Bi targets irradiated by 40-2600 MeV protons	HIGH	150
2884	Integral Experiments at BFS Critical Facilities for Justification of Minor Actinides Transmutation and their Analysis (Matveenko)	High	764/ Reduce to 600
2925	Measurement of transmutation properties of minor actinides irradiated in intermediate reactor neutron spectrum (RIAR)	High	862
2931	Experimental and theoretical verification of a precision method for electronic controlling the RedOx-potential of molten salts for reactors, transmutation of long-lived RW, and non-aqueous reprocessing SNF.	LOW	
2952	Measurement of differential and integral fission cross-sections of ²³⁷ Np, ²³⁸ Pu, ²⁴¹ Am, ^{242m} Am and ²⁴³ Am nuclides to optimize burning out of nuclear fuel waste	Consideration/No European coll	
B1108	Neutron Data for Actinides up to 200 MeV	LOW	210

Reviews 2004-2005

Project #	Shorttitle	Manager	Institution
2253.2	Delayed neutron characteristics from the fission of compound nuclei ^{233}Th , ^{234}U , ^{235}U , ^{244}Am , ^{238}Np , ^{246}Cm , ^{233}Pa , ^{234}Pa , ^{239}Np , ^{240}Np at the excitation energies from 5 to 20 MeV.	V. Furman	Dubna
2711	Measurement of neutron induced fission cross sections for ^{238}U , ^{232}Th , ^{209}Bi , natPb , ^{197}Au and natW in the energy range 20-175 MeV	Larisa A.Vaishnene	PNPI Gatchina
2853	Measurement of energy and isotope dependencies of fission cross sections of heavy nuclei induced by proton in energy range of 200-1000 MeV	Alexander A.Kotov	PNPI Gatchina
2928	Liquid Metal Coolant for High-Temperature Fast Reactors	P.N. Alekseev	Kurchatov
2931	Experimental and theoretical verification of a precision method for electronic controlling the RedOx-potential of molten salts for reactors, transmutation of long-lived RW, and non-aqueous reprocessing SNF	L.Shimkevich	Kurchatov
2961	Development of High Temperature Uranium Carbide Target-Ion Source Units for Production of Isotopes Far from Stability	Panteleev, V N	PNPI Gatchina
2878	Digital technology for the detection and control of fissile materials in devices with pulsed neutron sources	Romodanov,	MEPhI
3020	"Development of oxygen sensors, systems of control of oxygen content in lead coolants for test loops and facilities	Y.I. Orlov	IPPE
3266	Experimental and theoretical study of the residual nuclide production in 40-2600 MeV proton-irradiated thin targets of ADS structure materials	Y. Titarenko	ITEP
3084-STCU	Development of methods and equipment for increasing cyclotron complex power and efficiency its industrial using		

Activities 2004-2005

Focus on some projects of particular importance:

- SAD/Yalina steering committee, see presentation of C. Broeders, number of meetings in Dubna/Moscow + Eurotrans ECATS
 - SAD project – ongoing integration with Eurotrans
 - YALINA project – continuous development of the project, integration with Eurotrans. Development of bilateral contacts, trainee program

Meeting in Moscow, Jan. 2004

- **Actions and decisions:**
- #2002 is recommended to apply for prolongation for the EUROTRANS/TRADE related objectives. TRADE has some partnership funding. This topic will be presented on the next CEG meeting and the recommendations will be forwarded to EC. C. Broeders is a key-collaborator
- #2405 – a question of European co-funding will be presented and discussed at the CEG meeting. Key-collaborators: W. Gudowski, E. Gonzalez , C. Broeders
- #1251 - Neutron- and heat- physical experiments with cylindrical targets bombarded with medium-energy protons – V. Belyakov-Bodin – a proposal to “revive” this project for EUROTRANS/TRADE-oriented objectives will be presented at the CEG meeting by C. Broeders
- #2578 – it was agreed by the collaborators that the project should SKIP the TASK3:” **“Development of ideas on the transmutation potential of FB, ADS and specialized hybrid fusion reactor blankets”** and starts immediately. Collaborators wish to receive progress reports every 3 months. Key-collaborators: C. Broeders, E. Gonzalez, W. Gudowski.

ISTC Projects Meetings #2267 (SAD) and #1372 in Dubna, January 26-27, 2004

Establishing of the SAD/YALINA Steering Committee

CONCLUSIONS AND ACTION PLAN

SAD-project

The foreign collaborators are somewhat concern that the SAD-project did not get yet a real momentum. In particular:

- The design studies are not really converging at the moment and we do not see a coherent approach at the moment. There is a very urgent need for very close collaboration between NIKIET designers and the rest of the project. In simple words we do not perceive that a real coherent TEAM-WORK has been started. The same concern is valid for the important topic of subcriticality measurements/monitoring
- The fuel for SAD is of course of outmost importance. The collaborators were not really convinced that the fuel manufacturing and delivery is really ensured and we urge the project management to promptly clarify this issue
- The dialog with licensing authorities has been already initiated but having in mind very tight time schedule we consider that much more attention should be paid to this issue
- The foreign collaborators have not been really convinced that the necessary constructional work is possible to be done in the time frame suggested in the workplan and presented on the meeting.
- The collaboration between different international partners at JINR could be much more intensive and more coherent. Foreign collaborators see a great potential of collaborative tasks of JINR member states, but this work must be intensified and get much bigger attention and support of the JINR management

ISTC Projects Meetings #2267 (SAD) and #1372 in Dubna, January 26-27, 2004

- **ACTION PLAN:**
- The strong SAD steering committee should be established immediately, consisting at least of SAD-project management (project manager and chief designer), key foreign collaborators (CEA, FZK, CIEMAT, KTH, EC) and ISTC manager, possibly key-collaborators from the JINR member states . CEG will nominate their representatives, V. Shvetsov will suggest other members. This steering committee must be recognised by JINR-management. It is also suggested to have a broader scientific committee for SAD, consisting of scientific/technical representatives of all parties participating in SAD-project
- The Steering Committee should have continuous electronic information update and meet at least 3 times a year to monitor the project progress.
- Foreign collaborators see a very necessity of stronger support for SAD from the JINR management. **We do not see good prospects for this project if it does not become an official, high priority JINR-project.** Project manager with his team should take up this issue with JINR management.
- The benchmark-design group has been established and dr. Lopatkin is chairing this group. Foreign collaborators expect that this group will bring very soon a full coherency into design work and will create a real team-work
- Highest priority should be immediately put on the following tasks:
 - Final design (hopefully solved in action above)
 - Fuel manufacturing, qualification and delivery. We appreciate very much the choices of highest possible qualification (quality) of the fuel ensuring SAD to be a good validation experiment
 - Close interactions with licensing authorities to avoid any “show-stoppers” in the licensing process
 - Planning and progressing of the necessary constructional work including adjustment at the accelerator complex.
- SAD team should intensify its contacts, collaboration and information exchange with running project MUSE and other EU-projects, and in particular with EUROTRANS project proposal.
- Foreign collaborators with a great interest see at different subcritical experiment ideas (like the one presented by dr. Chigrinov), and we would encourage these activities if they do not disturb SAD-planning and experimenting. In fact we would like to see a full synergy between those ideas.

ISTC Projects Meetings #2267 (SAD) and #1372 in Dubna, January 26-27, 2004

#1372

Foreign collaborators are seriously concerned about some part of this project.

We suggest a following, immediate action plan:

- Project management will deliver in at highest 3 weeks a detail report on the fulfilment of the Working plan. Foreign collaborators would like to see a very simple “task-after-task” analysis of the approved Working Plan and a progress/completion report on every single topic.
- Project management will present an “in promptu” remediation plan convincing us that the last measurement session on the LVE-accelerator will produce expected, reliable data. If no reasonable assurance can be given that the experiments will give quality data appropriate conclusions should be drawn by the project management.
- The most recent progress report will be distributed to the collaborators as soon as possible

Charter of the SAD/Yalina Steering Committee

Purpose

- The purpose of the SAD/YALINA-B Steering Committee is the coordination of the ISTC projects with integral experiments with source-driven sub-critical systems and integration of those projects with the European ADS-related activities.. Currently, the ISTC project #2267 (Sub-critical Assembly Dubna, SAD) and the #B070 successor experiment with lead booster (YALINA-B) are involved. Other experiments under consideration will be included if corresponding proposals for ISTC projects decision board will be prepared.

Membership

- Initially the Steering Committee is composed of representatives from the ISTC collaborating parties: EU (Germany, France, Sweden, Spain), the SAD and YALINA-B project management and of the Polish JINR cooperation. It may be expanded as necessary and upon agreement to include other participating countries, like other JINR members etc. The list of committee members is given in attachment 1.

Objectives

The objectives of the Steering Committee are

- to prepare and provide guidance and advice on a scientific program for ADS ISTC integral experiments, currently SAD and YALINA-B, and to supervise the progress of the construction of these experiments,
- to ensure that the scientific program of SAD, YALINA-B and possible other ISTC experiments, will address the needs of the European and international efforts for ADS research and contribute towards the realization of an ADS demonstration facility,
- to offer a forum for the participating countries and collaborators to provide input into planning of the experimental programmes,
- to ensure scientific and technical participation in the experiments and their analysis.

Charter of the SAD/Yalina Steering Committee

Implementation

- **The Steering Committee will give advice to funding organizations for the installation, commissioning, planning and execution of the experimental program:**
 - review program plans provided by project leadership,
 - oversee progress of efforts concerning:
 - construction of the facility,
 - instrumentation,
 - safety and commissioning,
 - quality of experimental work ensuring its validation quality,
 - long term scientific activities
- **The Steering Committee will support the projects by:**
 - establishing an effective collaboration and cooperation with JINR and ISTC,
 - coordinating the participation of partners in the SAD/YALINA-B related efforts, including exchange of experimental support if possible,
 - disseminating the reports and the results of experiments,
 - providing collaboration links with European and other interested groups.
- **The Steering Committee promotes strongly the continuous support of ISTC and EU for SAD, YALINA-B and possible other projects with source-driven sub-critical systems.**
- **The Steering Committee meets three times a year and in between meetings uses electronic communication.**
- **The Steering Committee reports to the ISTC Contact Expert Group on Transmutation related projects (CEG). Minutes from every meeting, and action plan updated between meetings, will be reported to CEG.**

1st SC-meeting- Dubna - 13 July 2004

- 1 The SC members agreed to record, in addition to the action plan, the following general conclusions as the outcome of the first SC Meeting:
 - By the end of December 2004, the SAD project manager will provide a cost assessment for the SAD construction. Resp. V. Shevstsov.
 - The issue of final disposal of SAD activated structures was raised; an action was put on the SAD project manager to initiate preliminary discussions on this subject with the appropriate persons at JINR. Resp. V. Shevstsov
 - The SC expects strong commitment on the side of JINR for the construction and operation of the SAD facility, and asks the SAD project manager to convey this message to the JINR management. Resp. V. Shevstsov and C. Broeders
 - The SC took note that the IAEA Coordinated Research Project (CRP) on analytical and experimental benchmark analyses of sub-critical systems driven by an external neutron source was approved by the Agency. The CRP will start in 2005. The SC acknowledged that both projects, SAD and YALINA, would greatly benefit from the participation in this CRP. Forms for research agreement and contract proposals were distributed by the IAEA representative in the SC, and the participants were encouraged to submit proposals for participation in the CRP. Resp. A. Stanculescu
 - The SC acknowledges that SAD fuel manufacture was initiated, and that no cliff-edges were encountered at this stage of the fuel manufacturing process. The SC also took note of the fact that the fuel assembly grids will be manufactured at JINR.
- 2 Next meeting: it is planned to hold the Second SC Meeting on 20 and 21 January 2005 in Minsk, Belarus.

SAD/YALINA-B 2. SCM Minsk, 24-25 January 2005

- Action plan from the 2-nd SAD/YALINA SC meeting
 - **SAD short term actions**
 - Project time schedule with identified critical paths and milestones of special importance for EUROTRANS: 10 Feb. 2005 with 1-st draft distributed by Feb.6: responsible V. S.
 - Cost assessment, linked to the TS, exploring ISTC funding and ISTC-channeling and “Russian template”: 10 Feb. 2005 with 1-st draft distributed by Feb.6: responsible V. S.
 - Cost assessment should be prepared according to the timeline with well defined parts for salary, design work, equipment manufacturing and construction work: responsible V. S.
 - Template for the cost assessment will be kindly provided by H.A.A. by Jan.28 2005: responsible H.A.A.
 - The document “White Paper”, summarizing the objectives and the most important deliverables of the SAD. First draft to be prepared by Jan.31. This document will contribute to development of the “comparison table”/C.B./, which is the separate document, first circulation by Feb 1: final draft - Feb. 8 2005 responsible: C.B.&V.S.
 - The additional funding options are to be explored for example: USA or Japan support for physical security system of SAD/V.S./, collaborators co-funding/SC members/, Japan and/or USA through ISTC/W.G, C.B. &V.S./.
 - SAD management prepares request to ISTC executive director for current project prolongation caused by exchange rate effect till the end of 2005.
 - SAD management prepares the ISTC application for the Phase II as a prolongation of the SAD project for the second GB meeting of 2005.
 - Recommendation from the SC to the EUROTRANS committee on the SAD experiment: Jan 31, responsible: SC members
 - SAD management prepares annual report on ISTC project #2267 with description of the SAD design by the end of Feb. 2005.
 - **YALINA actions**
 - Formal proposal for continuation of the YALINA experiment. The proposal should have strong synergy components with SAD: by the Feb. 15 2005, responsible S.Ch., V.S. & C.B.
 - Calibration of the YALINA detectors at MOL facility. Yu. Pepelyshev from SAD team participates this activity.: by June 30 2005, responsible: S.Ch. & H.A.A.
 - **General actions**
 - The Polish group from UMM prepares benchmark on SAD target induced activity.: first input by the end of Feb. 2005, responsible: G.D. with intensive consulting needed from C.B.&E.G.
 - The SAD/YALINA collaborators create a group of young students/researchers/engineers to join experimental work on YALINA and SAD. The seed of this group already exists.
 - SAD/YALINA collaborators to submit proposals for Research agreements and Research contracts to IAEA for the CRP “ ...ADS benchmarking... ”.: by the end of Feb. 2005.

Third Meeting of the SAD/YALINA-B Steering Committee (SC) JINR Dubna, Frank Laboratory of Neutron Physics, June 27-28, 2005

- On June 28 SAD realisation was discussed in a “Round Table” session. Participants were: C. Broeders, Y. Gohar, W. Gudowski, N. Jousten, F. Mellier, L. Tocheny, V. Shvetsov, A. Sissikian (Director General of JINR), D. Villamarin, JINR-chief engineer and Dr. Olszewski, chief engineer of the Accelerator
 - The estimated total costs and the possible contributions of the partner were discussed in some detail. The differences between Russian full cost calculation model and ISTC payment, mainly for personal costs, was explained. ISTC cost model is more effective, but only can be applied for restricted tasks. W. Gudowski proposed the following partition:
 - 1/3 JINR, Dubna, mainly for infrastructure
 - 1/3 ISTC, mainly for personal costs in Russia and nuclear installation (fuel manufacturing)
 - 1/3 IP EUROTRANS/ECATS, mainly for experiment support
 - At this stage no absolute numbers were fixed, but the expectation was expressed that detailed negotiations for real realisation of the project can lead to significant cost reduction. The discussion to solve the financing of SAD was very constructive:

Meeting Eurotrans-SAD, September 16, 2005

- JINR Commitment document signed
- Funding discusses

- JINR Program Advisory Committee meeting Nov. 7-8, 2004
 - Presentation of SAD by WG
- 4th Meeting of SAD/Yalina SC – Minsk, December 2005

Problems to solve..

- A new period in ISTC activities, drastically changed political climate and scene:
 - Partially successful shift towards "partnership projects" mainly with USA
 - Weak collaboration between ISTC partners i.e. USA, EU and Japan in funding of really common projects
- CEG continues grass-root activities, a lot of projects became very successful
 - Lasting links to towards European Projects
 - Openness of Russian labs – (is this period is passing over ??)

Particular objectives:

- Assure ISTC funding for SAD and full integration with Eurotrans
 - How about supporting projects
- Continue with Yalina experiments ("new" B70)
- Continue nitride projects (Matine-2)
- Pb-Bi technology – project #2048
- Good strategy for nuclear data projects!

Vision

- A strategy to gradually transform EU-ISTC activities under FrameWork programme
 - We have a vision, but it is not politically anchored
 - Better focus of ISTC projects, more “business-like like” approach or research on European conditions
- Partnership program **does not work** well with European partners
 - WE CAN MAKE A CHANGE!