

# **INTAS Collaborative Call with CERN 2005**

## **on LHC Experiments Preparation and Data Analysis Security**

### **Information Package**

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#### **Annex: List of Keywords**

## 1. GENERAL INFORMATION

In 2005 INTAS launches a Collaborative Call for research project proposals with CERN (hereinafter referred to as "Collaborative Call CERN 2005"), with a **budget of € 1.5 million, equally shared between CERN and INTAS.**

An INTAS research project is a joint undertaking by a partnership of teams ("**consortium**") designed to produce new knowledge through experimental and/or theoretical scientific research, whereby each team of the partnership actively pursues specific objectives with a view to pooling the results to contribute to common, well-defined objectives.

### 1.1. Scope

The **LHC** (*Large Hadron Collider*) is the next large particle accelerator currently under construction and scheduled to start operation in 2007 at CERN. Five experiments will be built to utilise the LHC, namely ATLAS and CMS which are large, general purpose particle detectors and LHCb, ALICE, and TOTEM which are smaller and more specialized detectors.

The CERN INTAS Collaborative Call 2005 will cover research related to the design, construction, data acquisition and data processing of experiments to be carried out at the LHC at CERN, including the physics of LHC detectors.

About .5M€ from the overall budget of the call will be earmarked for research projects on grids, and especially on computer security requirements for sites which will participate in LHC experimental data analysis around the world.

The call encompasses basic and applied research but excludes market-oriented technology development.

### 1.2. Project Consortium

The project consortium must comprise at least two teams from two different INTAS member states, including the coordinator, one of teams at least being from a member state of CERN; and at least one team from a NIS country.

### 1.3. Duration

The duration of a project must be 18, 24 or 30 months.

### 1.4. Funding

The maximum grant allocated per project by INTAS is **€ 300,000.**

The funding of a research project will depend on the nature and duration of the research done and must be justified in terms of the resources needed to achieve the objectives of the project. The funding requested should therefore be realistically adjusted to the actual needs of the project, taking into account any other funds available. A typical grant request will be **in the range of € 50,000-150,000.**

No more than **25%** of the total INTAS grant is available for teams from INTAS member states.

## 2. ELIGIBILITY OF PROJECT PROPOSALS

**Proposals** must:

- Be in the scope of the call as described in section 1.1; proposals focused on the development of market-oriented technologies will be discarded;
- Meet the consortium composition requirements as specified in section 1.2;

- Comply with the allowed duration as specified in section 1.3;
- Comply with the funding requirements as specified in section 1.4;
- Comply with the terms of the submission procedure as described in this Information Package;
- Be complete according to the rules described in this Information Package;
- Be submitted in the English language;
- Meet the submission deadline as set forth in the announcement of the Call.

**Only proposals meeting all above eligibility criteria will be processed by INTAS.**

In the event of several identical or nearly identical proposals submission within this Call, INTAS will process only the latest version received and declare all other versions ineligible.

If there exist other opportunities to submit a project proposal, such as an open, thematic or collaborative call offered by INTAS during 2005, the consortium has to make a choice and **submit its proposal to only one call**. In case identical or nearly identical proposals are submitted through different calls, INTAS reserves the right to select one version of these proposals for further processing, to associate it with the most adequate call, and to declare all other versions ineligible.

### **3. ALLOWABLE PROJECT COSTS**

Each team of the consortium must make a significant scientific contribution to the project and will be allocated a share of the funding corresponding to this contribution.

Allowable project costs are grouped in three categories: **labour costs, operational costs and overhead costs**. All costs have to be justified by the needs of the project.

#### **3.1 .Labour Costs and Individual Grants**

Teams from INTAS member states may claim for labour costs according to their internal rules.

NIS team members are allocated **individual grants**. An individual grant is a financial contribution paid directly by INTAS to a NIS team member to support him personally in his scientific work related to the project. It should not be perceived as a salary and does not establish a working relation between INTAS and the grantee.

Individual grants obey the following rules:

**Categories of participants**

Depending on the qualification/seniority of NIS individual participants and on the NIS country, the following scale is used to determine the *maximum monthly individual grants*.

NIS Category	Category 1	Category 2	Category 3
<b>Participant Category</b>			
<b>Category 1</b>	300 €	240€	180€
<b>Category 2</b>	200 €	160€	120€

**Table 1: Maximum monthly individual grants** per category of grantee and category of NIS countries

**Participant Categories:**

- Category 1: Team leader; Scientist or engineer holding an academic degree; PhD Students
- Category 2: Technical and other support staff

**!!! Undergraduate students are not eligible for individual grants.**

### **NIS Categories:**

- Category 1: Russian Federation, Ukraine
- Category 2: Belarus, Kazakhstan
- Category 3: Armenia, Azerbaijan, Georgia, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan

The **indicative** maximum amounts per month given in the above table can be adapted *downwards* within reasonable limits to meet local conditions by agreement between the team leaders and the coordinator. The monthly amount will be finally approved by INTAS.

### **☐ Time involvement of participants**

In order to be eligible for an individual grant, any NIS team member must commit himself/herself to being involved at least 25% of his/her time in the project activities, calculated over the full duration of the project.

NIS team members may take part in more than one INTAS project, provided the total amount of the individual grants they receive per year does not exceed 12 times the monthly maximum permitted by their category. **Those found to exceed the yearly maximum will be excluded from all current and future INTAS projects.**

Only **the total labour cost per team** has to be specified in the proposal budget table. The labour costs will be finally approved by INTAS.

## **3.2. Operational Costs**

Operational costs include travel and subsistence, consumables, equipment and other costs.

### **3.2.1. Travel and Subsistence**

- National and international travel at the most economic fare available.
- Visa and social security or other insurance costs relating to the travel period.
- Accommodation and other subsistence costs according to the internal rules of the team member.
- NIS participants may receive for *travel outside the NIS area* a daily allowance exceeding the internal rules of their NIS organisation. In this case, the *maximum* allowance for the total living expenses including accommodation is 100 € per day, up to a maximum of 2,000 € per month or a maximum of 5,000 € for three months.
- INTAS supports travel & subsistence costs up to a maximum of three months per person per year.
- Travel outside the NIS and the INTAS member states needs to be approved by INTAS in the work programme or by prior written approval if not foreseen in the work programme.

### **3.2.2. Equipment**

- Any team may purchase equipment.
- NIS teams may purchase equipment themselves or request the teams from the INTAS members to do so on their behalf.  
In the latter case the equipment cost shall be shown under the cost heading for the NIS team.
- All equipment financed by the INTAS grant must be purchased or manufactured after the commencement date of the cooperation agreement (see Chapter 6).

### **3.2.3. Consumables**

- Costs of materials or goods, including those required for repair or maintenance of equipment.
- Costs for infrastructure, operation, transportation, etc. required for the research project to be carried out.

#### 3.2.4. Other costs

- Costs for publication, dissemination and patenting, administrative costs, etc. which cannot be classified under the previous cost items but are required for the project implementation.
- Management, organisational and subcontracting costs required to run the project.

Only **the total operational cost per team** has to be specified in the proposal budget table. The final operational costs will be negotiated by INTAS.

#### 3.3. Overhead Costs

Overheads may be requested by the hosting institutions to cover costs which cannot be specifically accounted to the project. As INTAS grants are not based on a full cost calculation, overheads should be kept as low as possible:

- For each team from INTAS Members, a lump sum of up to 2,000 € or 20% of the total of the allowable costs of the respective team, whichever is the higher.
- For each NIS team, a maximum of 10% of the total of the allowable costs of the respective team.

Overheads, if any, will be transferred to the account of the institution to which the team belongs.

## 4. PREPARATION AND SUBMISSION OF PROPOSALS

**Only submissions through the INTAS Internet-based submission system are accepted. Proposals sent by post, e-mail, telex or facsimile will be rejected without notice.**

### 4.1 How to use the INTAS Submission System

#### 4.1.1 Registration in the INTAS Submission System

In order to prepare and submit a proposal **the coordinator** should access the INTAS on-line submission system through Internet site <http://www.intas.be>; link: "Submission System" and select the "Thematic Call on Genomics 2005".

When accessing the submission system for the first time the coordinator will be asked to enter his/her e-mail address. In return s/he will receive by e-mail a "user ID" and **two** passwords, namely the "**password**" and the "**unlock password**".

**!!! Make sure that you register in the Thematic Call on Genomics 2005! Once entered in the submission system a proposal cannot be transferred by the coordinator to another call.**

#### 4.1.2 Access to the INTAS Submission System

By using the **password** all partners in the consortium are able to execute their own part of the project proposal submission and to replace the proposal partly or fully with an updated version.

By using the **unlock password** either before or after the final submission but **before the deadline**, the coordinator is able to delete, correct or replace the proposal. Therefore:

**!!! It is strongly recommended that knowledge and use of the unlock password be restricted to the coordinator.**

Please note that **only one partner may access the proposal file at a given time**. In case of simultaneous login attempt, the system indicates: "somebody else is working on the proposal" and denies the second connection.

#### 4.1.3 Final Submission

Only **the coordinator** can execute the final submission by using the **unlock password**.

**!!! Each time the unlock password will be used to re-open the proposal for control or for**

modification, **it is imperative to redo the final submission.** Otherwise the proposal would remain in the preparatory status and not be considered submitted.

**Proposals not finally submitted will not be further processed by INTAS.**

**!!! Avoid final submission just before the deadline.** Experience shows that high Internet traffic during the last days before the submission deadline of the Call may make the access difficult.

#### **4.1.4 Print-out of the proposal full text**

After **final submission** of the proposal, the submission system generates the full text of the proposal as it will be submitted to the evaluators. This proposal text will be returned to the coordinator by e-mail usually within 3 working days, together with the acknowledgement of receipt (see 4.1.5).

##### **Recommendations:**

- During the preparation of the proposal, print out and control each of its completed sections separately using the “print and preview” button.
- Make the first final submission of the proposal early enough to check the generated text and keep the opportunity to resubmit the proposal, identical or corrected, before the deadline.

#### **4.1.5 Acknowledgement of Receipt and registration number**

After final submission of the proposal, the coordinator will automatically receive by e-mail an acknowledgement of receipt with the proposal's registration number.

Re-opening the proposal after the final submission by using the unlock password **renders the acknowledgement of receipt void.** A new acknowledgement of receipt will be provided after each re-submission.

#### **4.1.6 Deadline**

It is imperative that all proposals are finally submitted by the co-ordinator before the deadline specified in the announcement of the call.

**Access to the Submission System will be closed after the deadline.**

##### **!!! ATTENTION:**

- While working on your proposal, the submission system will automatically interrupt the connection after 30 minutes if no data are sent to the INTAS server. Data are sent every time you press the “save” button.
- When you stop working with the submission system, please **always use the “log off” button.** Failure to do so will result in the system blocking any further access to the proposal and indicating: “Someone else is working on your proposal”. In such a case, the proposal can only be accessed again with the unlock password.
- To **check the status** of your proposal, access your file using the password. If the acknowledgement of receipt is displayed, the final submission has been executed; if the proposal text is displayed, it is still in the preparatory phase. **Do not use the unlock password for checking the status of your proposal.**
- Before a proposal is finally submitted, the INTAS submission system automatically checks some of the eligibility criteria. Please note that **not all eligibility criteria are checked automatically** and that the responsibility for compliance with the eligibility criteria rests with you.
- Don't forget to **re-submit your proposal after each use of the “unlock” password.**

## 4.2 How to submit your proposal using INTAS Submission System

Proposals must be written **in the English language**.

### 4.2.1 Building your proposal with the INTAS Submission System

The submission system guides you throughout the preparation of your proposal and controls the input of all mandatory information. It is self-guiding; however, to get a complete overview of the forms that need to be filled in, you can also download the Technical Guide from INTAS Web site.

The submission system structures your proposal in separate sections in each of which you are invited to provide the information as described below. You may complete the sections in any order. Only after all the mandatory information of a given section has been introduced will the system accept to save it. If you are temporarily unable to provide mandatory information but still want to save the preliminary input, you may introduce an asterisk in the respective field and fill it later.

**Text sections** are entered *either* by directly typing in text boxes *or* by uploading a text file, depending on the option proposed by the system. Uploaded text files must be in plain text format **.txt** or in **.rtf** format; other formats are not supported by the system.

When offered, the uploading option gives also the possibility to include **graphic objects**, such as formulas, tables, charts and pictures. Graphic objects can be either included in the text of the proposal or uploaded as separate, graphic files. The system supports the following graphic formats: **.jpg**, **.jpeg**, **.gif**, **.tif**, **.bmp** and **.png**. Use of any other format (including **.pdf** format) may result in various sorts of problems including generation of a corrupted final text of the proposal.

**!!! INTAS will not be responsible for problems occurring with the submission and with the final text of the proposal, generated by the use of formats not supported by the Submission System.**

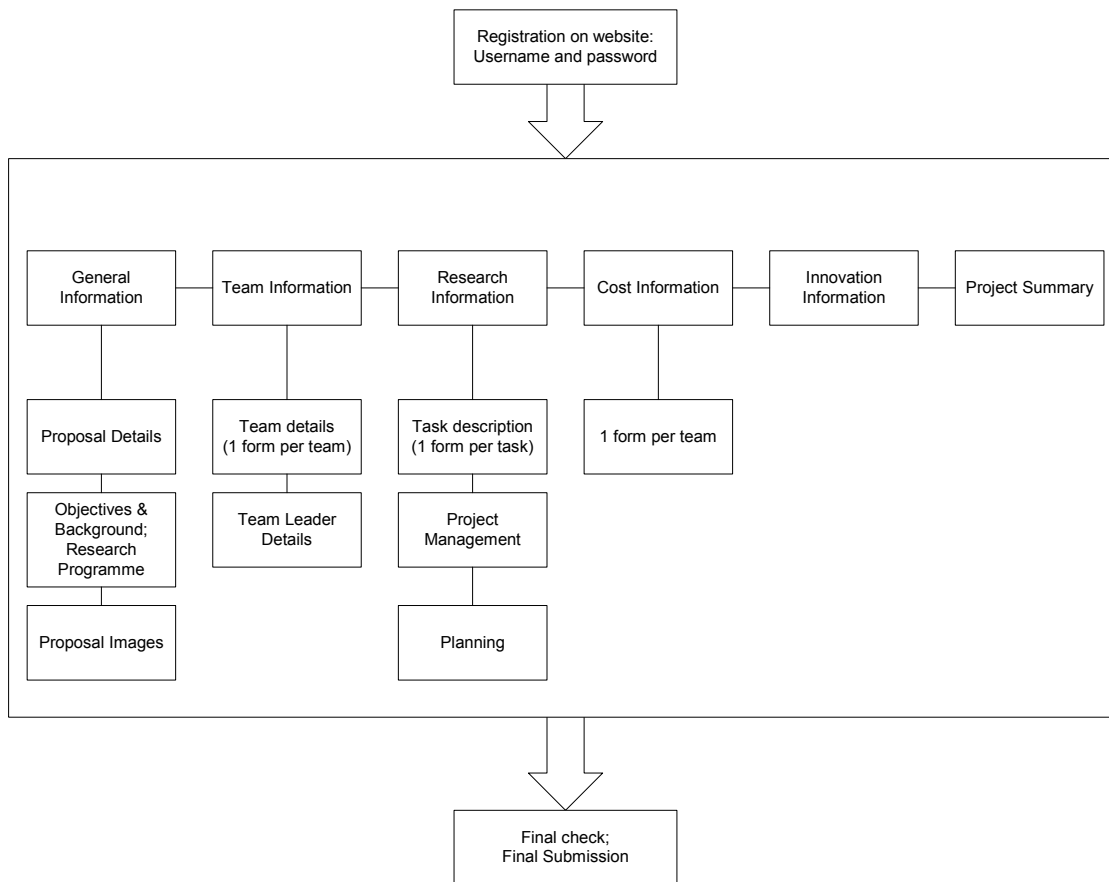
### 4.2.2 Submission of the proposal

Within the proposal submission programme the information requested for proposal submission is organised in six independent sections: Figure 1 gives an overview of the different sections to be filled in.

#### Section A GENERAL INFORMATION

##### A1. Proposal Details

- 1.1. Proposal Type: Research Project
- 1.2. Keywords: Identify the keywords selected from the INTAS keyword list (see Annex: List of Keywords).  
**!!! Please note that the first keyword determines the scientific field under which your proposal will be processed;**
- 1.3. Free words: Supply additional free words to further specify your scientific subject.
- 1.4. Title: Give the title of your project (less than 200 characters); please note that the first line will be used as "short title" for identification purposes
- 1.5. Intended starting date: not earlier than 1 February 2006
- 1.6. Duration: 18, 24 or 30 months



**Figure 1. Proposal Submission Programme. Flow diagram.**

## **A2. Background and Research Objectives (less than 5 pages)**

### A2.1. Scientific and Technological Objectives

Give a detailed justification of the objectives of the project against the state-of-the art in the scientific area of the project.

- Describe as precisely as possible the scientific objectives of the project. Whenever possible, quantify the objectives in terms of measurable outcomes.
- Give the scientific basis for your project and describe the present state-of-the-art concerning the specific research topics of your project. Identify important gaps to be filled in the current knowledge.
- Explain the novel character of the research proposed. Show how the objectives of the project aim at significant advance in the established state-of-the-art through extending the current knowledge and/or filling the gaps identified.
- Highlight the multidisciplinary character of the project, whereby the activities in the project will tend to draw on a range of scientific disciplines and explain how this interdisciplinarity is going to be exploited.
- Explain the relevance and importance of the research programme proposed, in terms of concrete applications (scientific and technological) and in terms of economic and societal impact.

## A2.2. Context of the project

- If the proposal is part of a larger national or international project, explain its precise role and how it fits into this wider context.
- If the project proposal is a continuation of a project which has been or is currently funded by INTAS, give the cooperation agreement number, the results already obtained and justify the extension in terms of new objectives and the quality of the cooperation to date.

## **A3. Research Programme (less than 2 pages)**

Give an overall description of the research programme and justify the methodology chosen to reach the objectives. The research programme will be further elaborated through the task description in the section C "Research Programme Information".

- Give an overall description and the general approach and methodology chosen to achieve the objectives. Highlight the particular advantages of the methodology chosen; quantify the expected project result(s).
- Explain where there is a potential for synergy effects between different tasks of the project and how this is going to be exploited.
- Give references of relevant scientific publications.

## **Section B. TEAM INFORMATION**

- Identify the participating teams, the organisations to which they belong and the team leaders.

For each team, the following information should be given:

- Team Details:
  - Give the total number of team members, indicating those members with less than 35 years of age. The size of each team should be limited to those scientists actually needed for performing the tasks.
  - Describe the background and particular expertise of the team against the tasks to be performed. Describe how the teams complement each other in the performance of the project.
  - A maximum of five references of relevant, recent scientific publications, which best show the capability of the research team to perform the work proposed. Indicate the name of the authors, the title of the article, the journal or other publication, the date and place of issue. If a publication exists on a website, give its address.
  - Describe the relevant instrumentation and infrastructure available in view of the tasks assigned to the team.
- Team Leader contact details

!!! The sections Team Information, Research Information (tasks), and Cost Information are linked within the Submission Programme. Only after information about a team has been entered, can tasks and costs related to this team be introduced.

## **Section C. RESEARCH PROGRAMME INFORMATION**

### **C1. Task Description**

Break down the research programme described in section A into individual tasks, showing the interrelation between the tasks.

Describe each individual task, indicating for each task:

- The title, objective and content, including methodologies to be used to reach the objectives, inputs (state-of-the-art, prerequisites, particular expertise required); outputs (expected results, deliverables).
- The time schedule within the project (e.g. months 6-10) and the interrelation between the

tasks with respect to the schedule; milestones, decision points.

- Criteria against which success should be judged.
- Potential risks of failure and back-up solutions (risk management).

Identify the teams involved in each task and name the task leaders.

## C2. Project Management

- Describe how the overall coordination, monitoring and control of the project will be implemented. Provide if possible a project organisation chart. Indicate the decision schemes foreseen in the project (decision boards, coordination meetings).
- If appropriate set up a detailed diagram giving the time schedule of the tasks and mark their interrelations; add milestones where important goals will be reached and/or decisions on further approach will have to be made; indicate a critical path marking those events which directly influence the overall time schedule in case of delays.
- Explain how information flow and communication will be enhanced within the project (e.g. collaboration and task meetings, exchange of scientists).
- Risk management: Indicate where there are risks of not achieving the objectives and fall-back positions, if applicable.

## C3. Planning

The submission system automatically generates a **project structure and planning scheme** on the basis of the information given under the section C1 "Task Description". This plan includes the scheduling of tasks and allocation of tasks per team. In case your project needs a more elaborated project structure plan please add it to the Project Management description.

## SECTION D COST INFORMATION

For each team, give the cost breakdown under the headings "labour costs", "operational costs" and "overheads". Justify the costs whenever requested by the submission system. Please note that detailed justification may be requested during negotiation of the contract. Please bear in mind that the operational costs will have to be broken down into travel costs, equipment, consumables and other costs in the annual and final reports.

Please note that during the negotiation of the contract details of the labour costs can be requested. The actual number and amount of individual grants will have to be specified during the course of the project by means of the individual grant forms.

In addition to the *project structure and planning scheme*, the submission system automatically generates the **consolidated cost table** from the information given in sections B, C, and D. Please note that these two documents can be changed only by changing the respective team information.

## SECTION E INNOVATION INFORMATION

- Give the expected results of your project, which have applications for further advances in science and/or improving technological products, systems or methods and/or have a significant economical or societal impact.
- Sketch out a dissemination and exploitation plan for your results which explains:
  - i. By which means the knowledge generated will be disseminated (publications, conferences, public policy proposals, etc.) and to which user groups;
  - ii. How the deliverables of the project (computer codes, technologies, prototypes or pilot plants, etc.) will be exploited;
  - iii. How the innovation potential will be further exploited through a technology implementation plan;
  - iv. Where relevant, how you plan to manage intellectual property, including patenting, copyrights, license agreements and any other arrangements.

## SECTION F PROJECT SUMMARY

Summarise the objectives, give a short description of the research activities and expected results of the project.

**!!! Please be aware that the summary of projects selected for funding will be published on the INTAS website.**

### Recommendations:

- Prepare the texts of each sub-section outside the Submission System and save them in separate files on your local computer. When using the Submission System, these files must be individually attached in the appropriate sections.
- Use of pictures and charts lead to a more concise and compact presentation. You may add pictures, figures or any graphic object if appropriate either by including them in .rtf files or by separately up-loading graphic files using formats as indicated in section 4.2.1 above. Images and text files can be integrated in the proposal in the sections A2 "Background and Research Objectives", A3 "Research Programme" and C2 "Project Management".

## 5. EVALUATION OF PROPOSALS

### 5.1. Introduction

The fundamental principles governing the evaluation of project proposals are:

1. **Quality.** Projects selected for funding must demonstrate a high scientific, technical, and managerial quality in the context of the objectives of INTAS.
2. **Transparency.** The process for reaching funding decisions will be clearly described and available to any interested party. In addition, adequate feedback will be provided to proposers on the outcome of the evaluation of their proposals.
3. **Equality of treatment.** All proposals shall be treated alike, irrespective of where they originate or the identity of the proposers.
4. **Impartiality.** All proposals are treated impartially on their merits evaluated against published criteria.
5. **Efficiency and Speed.** The procedures will be as rapid as possible commensurate with maintaining the quality of the evaluation.
6. **Ethical considerations.** Any proposal that contravenes fundamental ethical principles may be excluded from being evaluated and selected at any time.
7. **Reasonable chance of success.** The evaluation and selection procedures should respect a reasonable ratio between the effort needed for preparing and submitting a proposal and the expected chance of getting funded.

### Peer Review

The selection of the proposals for funding is based on a peer-review procedure. First, a dedicated pool of external independent experts<sup>2</sup> assesses the merits of the submitted proposals. Then the INTAS Council of Scientists consolidates the results of this external evaluation and makes recommendation to INTAS General Assembly based as much as possible on a consensus. The final decision rests with INTAS General Assembly.

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<sup>2</sup> An independent expert is an expert who is working in a personal capacity and in performing the work, does not represent any organisation.

## **5.2. Evaluators**

### **5.2.1. Appointment of Independent Experts**

INTAS appoints independent experts to assist in the evaluation of proposals. The independent experts are selected on the basis of their competence irrespective of their nationality, age and affiliation. They may come from countries other than the INTAS member states or the NIS countries. INTAS Secretariat staff members cannot act as evaluators during their service at INTAS.

In general, independent experts are expected to have skills and knowledge appropriate to the areas of activities in which they are asked to assist. All independent experts must also have a proven experience in one or more of the following areas or activities: research in the relevant scientific and technological fields; management or evaluation of projects; use of the results of research and technological development projects; technology transfer and innovation; international cooperation in science and technology; development of human resources.

Competence in the scientific field an expert is asked to assist in is established by at least three years of scientific activity in this field or a closely related field after his/her PhD and by his/her titles and works (publications in refereed journals, text books, invited lectures, awards, leading academic positions, etc.). In appointing independent experts, INTAS also takes account of their abilities to appreciate the challenges and societal dimension of the proposed work. Experts must also have the appropriate language skills required for the proposals to be evaluated.

Independent experts are recruited through:

- Calls for applications from individuals published in the INTAS web site and/or scientific journals.
- Calls addressed to research institutions to establish lists of suitable candidates.

Details of potential independent experts are maintained by INTAS Secretariat in a database. This database may be made available, on request, to national authorities in the INTAS member states.

### **5.2.2. Observing Principles**

After three years each external evaluator is requested to submit an updated list of publications or other measures appropriate to assess and to identify his present field of competence.

INTAS checks that the marks given by each individual evaluator do not deviate significantly from the average. In case significant discrepancies are observed, the proposals evaluated by this evaluator will be given special attention by INTAS Council of Scientists. If, on a statistically significant basis, an individual evaluator displays a clear tendency to either too high or too low scoring, the evaluator will be informed and asked to correct this tendency. In case the tendency would be confirmed in the long run, the evaluator can be removed from the data base of evaluators at INTAS' discretion.

### **5.2.3. Conflict of Interest and Confidentiality**

INTAS relies on the integrity of independent experts to base their opinion with strict impartiality exclusively on the basis of the information given in the proposal and against the established evaluation criteria.

When appointing an evaluator, INTAS takes all reasonable steps to ensure that s/he is not faced with a conflict of interest in relation to the proposals on which s/he is requested to give an opinion. The evaluators commit themselves to inform INTAS whenever a conflict of interest arises in the course of their duties. When so informed, INTAS takes all necessary actions to remove the conflict of interest.

The independent experts are committed to maintain the confidentiality of the information contained within the proposals they evaluate and of the evaluation process and its outcome.

## **5.3 Evaluation and Selection Procedure**

### **5.3.1. Eligibility Check**

The INTAS Secretariat checks that proposals meet the eligibility criteria referred to in the call. Formal criteria are pre-checked by the electronic submission system at the time of submission. INTAS

reserves the right to rigorously apply the eligibility criteria and to exclude from any further processing any proposal found to be ineligible. However, if it deems appropriate, INTAS may proceed with the evaluation pending a later decision. Such continuation of the procedure does not constitute a proof of eligibility. INTAS may also request to rectify the non-compliance with eligibility criteria during the negotiation phase.

If by the deadline for submission a proposal remains not finally submitted, the proposal is declared ineligible. However, INTAS reserves the right to inquire about the status of a proposal found not submitted and to further process the proposal if it deems appropriate.

### **5.3.2. Appointment of Evaluators**

For each proposal, evaluators are selected and appointed by the INTAS Secretariat from its independent experts' database, with a view to achieve maximum competence for the evaluation. Keywords and free words specified in the application help select the most suitable experts in the field of the proposal.

INTAS may also at any time select, if it deems appropriate, any individual evaluator with the appropriate skills from outside its database provided his/her credentials can be established prior to his/her involvement in the evaluation.

### **5.3.3. Overview on the Evaluation**

All proposals that fulfil the eligibility criteria are evaluated to determine their quality. As a rule, **three independent evaluators** are appointed for each eligible proposal.

The evaluation is performed on-line, using the Internet-based evaluation system. Each independent expert receives access to the proposal and submits the results of his evaluation via Internet. Proposals are distributed to the evaluators without encryption but protected by user names and passwords.

The evaluators are not informed on the other experts evaluating the same proposal. Each expert therefore assesses each proposal independently without exchanging views with the other experts.

Each evaluation procedure consists of a number of steps, which slightly differ for the first and the second step of the two-stage submission procedure as indicated below.

#### **Step 1: Briefing of the independent expert**

Each independent expert selected by INTAS is briefed about the title, keywords, free words and consortium of the proposal. Based on this briefing, the expert decides to accept evaluating the proposal or not. Before being given access to the proposal the evaluator is reminded of the rules for evaluators. In particular, s/he must immediately inform INTAS on any conflict of interest.

#### **Step 2: Individual evaluation of proposals**

Each proposal is evaluated against the applicable criteria independently by three experts. Each evaluator fills an individual evaluation form whereby s/he gives a score to each evaluation item, resulting in an overall score for the proposal. The evaluator also checks the compliance of the proposal with the scope of the call as well as with ethical criteria.

Evaluators are invited to comment their assessment, including recommendations on the budget.

#### **Step 3: Ranking List**

Each proposal will be evaluated by three evaluators against the set of criteria used by INTAS for research project proposals, including assessments of the merit of the objectives, of the research programme proposed, of the consortium and of the project management.

From the three total scores  $x_i$  given by each evaluator the *average score*  $\langle x_i \rangle$  of each proposal will be calculated and retained to establish a *ranking list*.

**Quality Threshold:** Proposals whose score will not reach a *quality threshold equal to 70% of the maximum score* will be discarded.

For proposals passing this threshold a *ranking list* will be established from scores in decreasing order.

#### **Selection of proposals subject to panel review**

A reference cut-off in the ranking list will be determined by the available budget. Based on this reference cut-off, three areas of the ranking list will receive a separate treatment:

- Proposals ranking above 50% of the reference threshold (“upper threshold”) will be automatically funded;
- Proposals ranking below 150% of the reference threshold (“lower threshold”) will be automatically discarded;
- All proposals ranking between the upper and lower threshold will be reviewed by a **dedicated Review Panel** consisting of selected members of INTAS Council of Scientists and **two experts appointed by CERN** (see below step 4).

As **exceptions to the above rule**:

- The experts appointed by CERN may request that proposals above the upper threshold or below the lower threshold be reviewed by the Review Panel;
- Proposals whose marks show significant deviations from the average marks (based on statistical analysis tools) or other irregularities detected by the Secretariat or the CS or the experts appointed by CERN will receive special consideration by the Review Panel.

The coordinators of the eligible proposals will be informed on the comments of the evaluators anonymously, thus giving them an opportunity to react within one week. Their comments will be made available to the Council of Scientists for the panel review of the proposals (see below step 4).

#### **Step 4: Panel Review**

The Review Panel will review all proposals of the ranking list selected according to the above described rules (see above step 3).

When reviewing proposals the Review Panel will bear in mind the budget distribution among the fields covered by the call. It will also bear in mind INTAS general policy to keep a reasonable balance among NIS countries and among geographical areas. The Review Panel will also pay attention to the involvement of young NIS scientists in the teams. The panel will be entitled to critically examine the proposed size of the teams and requested budgets and to propose reductions when deemed appropriate.

The Review Panel will prepare a consolidated list of all project proposals recommended for funding including possible recommendations for budget reductions from the originally requested amounts. The Review Panel will report to the Council of Scientists, which will prepare the final recommendation for funding. Based on this recommendation, the INTAS General Assembly will make the final decision on the list of projects to be funded together with their budgets and on a reserve list of projects eligible for funding.

The final outcome of the evaluation, including the overall ranking and remarks made by evaluators will be made available *anonymously* to the coordinators of the proposals after the evaluation and selection procedure has been completed.

Immediately following the completion of the evaluation and selection procedure, the coordinators of proposals eligible for funding and for which funding is available will be invited to begin negotiations with the INTAS Secretariat (see chapter 6).

#### **5.3.4. General notes**

Only the **information contained in the proposal** is used when assessing the proposal against the established criteria.

It is therefore the responsibility of the applicants to ensure that the proposal is written in an explicit form, which does not require assumptions on the part of the evaluators when assessing key issues. The proposal checklist in annex aims to assist applicants in meeting all requirements. This checklist is exclusively for the applicants' use and should not be sent to INTAS. Whilst this checklist is based on

INTAS' experience, INTAS takes no responsibility for its interpretation or possible omissions.

## 5.4 Evaluation Criteria

The evaluators are requested to assess project proposals against a set of criteria, each of which may be awarded a maximum of 5 points according to the following scale: 0=irrelevant to the call or information missing; 1=poor; 2=fair; 3=good; 4=very good; 5=excellent.

The proposal is evaluated against the set of criteria for research projects, which include the merit of the research objectives, merit of the research programme, merit of the consortium, and merit of the project management.

### (I) Merit of the research objectives (maximum score: 20)

1. **Objectives:** How clearly are the scientific objectives described?
2. **Relevance:** How well described is the relevance and importance of the proposed research from a scientific, economic and/or social point of view?
3. **Novelty:** How novel and promising is the proposed research?
4. **Feasibility:** How can the research objectives be realistically achieved in the time frame proposed against the current state-of-the-art?

### (II) Merit of the research programme & exploitation of the results (maximum score: 35)

5. **Appropriateness:** How clearly explained is the research programme? Is it well focussed on the research objectives?
6. **Methodologies:** How appropriate are the applied methodologies to reach the research objectives?
7. **Practicability:** How realistically can the proposed research programme be put into practice?
8. **Actuality:** Does the research programme reasonably involve state-of-the-art technologies?
9. **Interdisciplinarity:** To which extent does the research programme proposed draw on a range of scientific disciplines and how is this interdisciplinarity going to be exploited? Is genomics/proteomics/ bio-informatics an integrated part of the research programme?
10. **Innovation potential:** Is the project innovative in that its results may have applications for further advances in science and/or improving technological products, systems or methods and/or have a significant economical or societal impact?
11. **Knowledge management:** Does the proposal adequately plan: to use and disseminate project results by means of appropriate tools (publications, conferences, public policy proposals, etc.); to exploit the innovation potential through a technology implementation plan including demonstration, prototype or pilot plants, etc; to manage intellectual property, including patenting, copyrights, license agreements, etc?

### (III) Merit of the consortium (maximum score: 25)

12. **Consortium management:** Is the coordinator qualified to manage efficiently the resources and competences brought in the consortium from both INTAS member states' teams and NIS teams in view of achieving the objectives of the project?
13. **Expertise:** Do the teams involved collectively constitute a consortium of high quality? Does the qualification of the teams meet the requirements of the tasks?
14. **Commitment:** Do all the teams make a significant scientific contribution to the project?
15. **Human Resources:** Is the size of the teams justified by the tasks they assume?
16. **Technical Resources:** Does the consortium provide the technical resources including research infrastructures needed for carrying out the tasks?

### (IV) Merit of the project management (maximum score: 20)

17. **Budget:** How appropriate is the requested funding and its proposed allocation to each team?
18. **Task Assignment:** Are the divisions of tasks and resources appropriate for reaching the objectives?
19. **Planning:** How appropriate and realistic is the proposed workflow and time schedule? Does the proposal foresee adequate monitoring & control mechanisms and fall-back options?
20. **Communication:** Is the use of information and communication tools adequately foreseen (e.g. meetings, data exchange, and joint working periods, in particular for young scientists)?

**Evaluators' Comments:**

- General Comments: The evaluators are requested to make general comments with reference to each of the subgroups of criteria (I) - (IV).
- Comments on the budget: The evaluators are requested to comment on the appropriateness of the requested budget of the proposal.
- Comments on the management of knowledge: The evaluators are requested to comment on the appropriate management of knowledge and of innovation-related activities. This includes: 1/ a plan to disseminate the project results by means of appropriate tools such as publications, conferences, patents, public policy proposals, etc. 2/ if applicable, a technology implementation plan aiming to exploit the innovative potential of the results.

## 6. COOPERATION AGREEMENT

For proposals selected for funding the INTAS Secretariat will enter into negotiations for a cooperation agreement. Negotiations may cover any aspects of the proposal, based on any issue that was taken into consideration at the evaluation stage. In particular, INTAS will request during the negotiations that projects selected for funding are adapted to the approved budget.

The negotiations will be conducted primarily by INTAS and the co-ordinator on behalf of all the teams. To this effect, each team leader shall sign a Power of Attorney whereby s/he authorises the co-ordinator to negotiate and conclude the cooperation agreement, on behalf of his/her team/organisation.

The cooperation agreement sets forth the terms and conditions of cooperation in the project, the financial support by INTAS and any other rights and obligations between the contractors on the one hand, and between INTAS and the contractors on the other hand. It includes the contract and its general conditions, the work programme consisting of the scientific and technical description, the cost table and the time schedule, Powers of Attorney from each team representative and the applications for individual grants. The cooperation agreement also specifies the intellectual property rights of all participants. As a rule, knowledge created in a project shall be owned by the contractor(s) generating it. Contractors shall grant each other non-exclusive, non-transferable free access to this knowledge for their scientific work in the project, and shall agree on appropriate ways to develop and exploit potential innovations. INTAS has no contractual claim on any ownership of project results.

The cooperation agreements will be signed by INTAS and by the coordinator on behalf of all teams. If the coordinator is not authorized to represent his/her institution a duly authorized official of the coordinator's institution will have to countersign the cooperation agreement.

Payments under the project can only be made after the conclusion of the cooperation agreement and upon receipt of the coordinator's formal request for payment and original copies of Powers of Attorney from all contractors except the coordinator's institution. INTAS will make all payments directly to each of the contractors and each NIS scientist receiving individual grants.

## 7. PROPOSAL CHECK LIST

### FOR PROPOSERS' USE ONLY - DO NOT RETURN TO INTAS

	YES	NO
<b>PROPOSAL DETAILS</b>		
• Did you submit your proposal to the correct call?	<input type="checkbox"/>	<input type="checkbox"/>
• Does the proposal fall within the scope of the call?	<input type="checkbox"/>	<input type="checkbox"/>
• Did you identify up to 3 appropriate keywords and add free keywords if appropriate? [The first keyword determines the scientific field under which the proposal will be processed].	<input type="checkbox"/>	<input type="checkbox"/>
• Does the title fairly reflect the contents of the proposal? [The first line is used as a short title to identify the proposal]	<input type="checkbox"/>	<input type="checkbox"/>
<b>RESEARCH OBJECTIVES &amp; BACKGROUND, RESEARCH PROGRAMME</b>		
• Did you study carefully the evaluation criteria?	<input type="checkbox"/>	<input type="checkbox"/>
• Are the objectives clearly stated and justified against the current state-of-the-art?	<input type="checkbox"/>	<input type="checkbox"/>
• Is the proposed research programme properly adjusted to the objectives?	<input type="checkbox"/>	<input type="checkbox"/>
• Are the chosen methodologies appropriate to meet the objectives?	<input type="checkbox"/>	<input type="checkbox"/>
• Is the innovative potential of the project well illustrated and are appropriate measures foreseen for its exploitation?	<input type="checkbox"/>	<input type="checkbox"/>
• If the project forms a part of a larger existing national or international activity, is the INTAS funding complementary to other sources? [Double-funding is excluded!]	<input type="checkbox"/>	<input type="checkbox"/>
<b>TEAM INFORMATION</b>		
• Are there at least two teams from mutually independent organisations from two different INTAS member states? Is the coordinator from an INTAS member state's team?	<input type="checkbox"/>	<input type="checkbox"/>
• Is there at least one team from a NIS country?	<input type="checkbox"/>	<input type="checkbox"/>
• Did you identify the number of young scientists involved per team?	<input type="checkbox"/>	<input type="checkbox"/>
• Are the specific skills of each of the teams and how they complement each other to achieving the objectives clearly described?	<input type="checkbox"/>	<input type="checkbox"/>
• Will all team members be involved in the tasks of the team?	<input type="checkbox"/>	<input type="checkbox"/>
• Do the given references truly demonstrate the qualifications of each team?	<input type="checkbox"/>	<input type="checkbox"/>
<b>TASK DESCRIPTION</b>		
• Is the research programme divided into tasks, each with its own objectives and methodology to perform the research work?	<input type="checkbox"/>	<input type="checkbox"/>
• Are the duration, necessary inputs and outputs for the tasks specified in accordance with the relationship to other tasks?	<input type="checkbox"/>	<input type="checkbox"/>
• Will all teams, including the coordinator's team, make significant scientific contributions essential to the achievement of the overall objective(s)?	<input type="checkbox"/>	<input type="checkbox"/>
• Is a task leader assigned to each of the tasks?	<input type="checkbox"/>	<input type="checkbox"/>
• Is each task allocated to one or more team(s) and does this allocation match the skills of the teams?	<input type="checkbox"/>	<input type="checkbox"/>
• Are the technical and infrastructure needs and the approach to meet them well	<input type="checkbox"/>	<input type="checkbox"/>

described for each of the tasks?

### PROJECT MANAGEMENT

- Are the project structure, workflow and time schedule clearly explained?
- If appropriate, has a detailed flow chart been set up for the time schedule and interrelations of the tasks and did you define milestones and indicate a critical path marking events that directly influence the overall time schedule in case of delays?
- Did you check the consistency of the project structure and planning scheme with the actual distribution and timing of tasks and subtasks?
- Are actions, criteria, and schedules for monitoring and coordinating of the project outlined?
- Are the means and schemes for the flow of information and for communication within the consortium described?
- Are fall-back options defined for tasks where potential risks of failure exist and are the consequences described, if applicable?

### COST INFORMATION

- Have you listed the costs grouped into labour costs, operational costs, and overheads for each team separately?
- Is the funding for each team justified by the workload of the team?
- Are the travel and subsistence costs reasonably involved in the operational costs and are these consistent and reasonable in view of the scheduled meetings and working trips?
- Are labour costs reasonably estimated and justified by the workload of the team?

### INNOVATION INFORMATION

- Are the final deliverables in terms of expected research results, etc. specified (not merely repeating the objectives)?
- Are the deliverables specified in terms of their content and timing at different stages of the project, in order to allow achievements to be assessed during the lifetime of the project?
- Is it explained how the results can be used or exploited?
- Is a dissemination plan given? Is a technology implementation plan (if applicable) given?

### SUMMARY

- Does the summary clearly state the objectives, the work to be undertaken and the results expected?

### SUBMISSION

- Is all information requested thoroughly provided?
- Have all teams, except the coordinator's team, provided the Powers of Attorney authorizing the coordinator to act on their behalf?
- **Final Submission:** has the coordinator made the "final submission" and received the "acknowledgement of receipt" by e-mail? [To control the status of the proposal enter the project file with your password – if the acknowledgement of receipt is displayed the final submission is executed, if the proposal text is displayed it is still in the preparatory phase pending the final submission].

## 8. POWER OF ATTORNEY (*TEMPLATE*)

(To be filled in and signed by each team leader, (except the Coordinator) & retained by the Coordinator until requested by INTAS in the event the proposal is selected for funding)

“<PROJECT TITLE >“

By signing this declaration, I certify that the information given in this proposal relating to me and the team I represent is to the best of my knowledge true and complete. I have been involved in the preparation of the full proposal and I agree with its contents. I and the team I represent are ready to set up and execute all tasks, duties and obligations assigned to us in this research proposal, if selected. I and the team also agree to the use of Internet for the evaluation of the proposal, protected by username and password, and will not hold INTAS responsible for its unauthorised disclosure by third parties.

I hereby confirm that I and my team will not engage in research of a military character as part of the proposed project. I and my team will also observe internationally recognised ethical principles when implementing the project. I/we hereby authorise and empower the coordinator, as lawful attorney and administrator, to take all the necessary actions to negotiate and conclude the cooperation agreement, on behalf of my team/my organisation, should the proposal be selected by INTAS (and any co-funding organisation).

**For NIS teams only:** I am duly authorised to commit myself and the team I represent to the tasks, duties and obligations assigned to us in the Cooperation agreement.

**For INTAS member states' teams only:** I am/ we are duly authorised to sign on behalf of the organisation, which will become the legal party entering into the cooperation agreement.

Name of the organisation: (for INTAS teams, if different from the scientific team leader)

Name of the team leader: Name of the authorised official:

Function: Function:  
Signature: Signature:

Date: Date:

### Notes:

1. For teams from INTAS member states, if the team leader is not legally authorised to commit his/her organisation, the power of attorney should also be signed by the person legally authorised to do so.
2. INTAS will require all Power of Attorneys with the **ORIGINAL signatures** before the cooperation agreement for a proposal selected for funding can be signed.
3. A template is provided or can be downloaded from the INTAS web site <http://www.intas.be>

### Confirmation by the NIS organisation

I hereby confirm that the team from my organisation is duly authorised to participate in this project.

Name of the duly authorised representative of the NIS organisation:

Function:  
Signature:

Date:

## Keywords list

### **Statistics, Probability Theory and Mathematical Modelling**

- 0101 Probability & Stochastic Processes
- 0102 Statistics & Econometrics, Quantitative Methods
- 0103 Game Theory, Queuing Processes and related topics
- 0104 Data Management
- 0105 Mathematical Modeling in other sciences (Physics, Linguistics, Biosciences etc.)

### **Algebra, Topology & Manifold Systems**

- 0201 Algebra
- 0202 Geometry, Algebraic Geometry
- 0203 Topological Groups, Lie Groups, Harmonic Analysis
- 0204 Topology & Manifolds

### **Mathematical Analysis**

- 0301 Complex Analysis, Numerical Analysis
- 0302 Real & Functional Analysis
- 0303 Integral Transforms & -equations
- 0304 Variational Analysis & Optimal Control
- 0305 Dynamical Systems (including Ergodic Theory, Fuzzy, Chaotic Systems etc.)
- 0306 Differential Equations & Boundary Problems

### **Algorithms & Discrete Mathematics**

- 0401 Mathematical Programming
- 0402 Combinatorial Optimization
- 0403 Modeling and Simulation
- 0404 Mathematical Logic
- 0405 Number Theory
- 0406 Discrete Structures & related topics

### **Computer Sciences**

- 0501 Theoretical Computer Science
- 0502 Multimedia, CAD-CAM (computer aided tools)
- 0503 Software Engineering
- 0504 Hardware & Computer Architecture
- 0505 Information Theory & Systems, Networks, Protocols
- 0506 Artificial Intelligence, Signal & Image Processing, Pattern Recognition

### **Nuclear, Hadron & Elementary Particle Physics**

- 0601 Nuclear Structure, nuclear reactions
- 0602 Nuclear Instrumentation and Applications
- 0603 Neutron Physics
- 0604 Electromagnetic and Hadronic Probes, Nucleonic Structures
- 0605 High Energy, Particle Accelerators
- 0606 Physics with Heavy Ions, Compressed Nuclear Matter, Equation of State
- 0607 Elementary Particles

### **Theoretical Physics**

- 0701 Theory of Elementary Particles & Fields, Field Theories

- 0702 Quantum Theories, Atomic and Molecular Theories
- 0703 Statistical Physics, Thermophysics & and Nonlinear Dynamical systems
- 0704 Fluid Dynamics
- 0705 Nuclear Theories

### **Astronomy & Astrophysics**

- 0801 Solar System, including Extra-Solar Planets
- 0802 Stars: Atmospheres, Winds (including Solar Wind), Nucleosynthesis, Evolution
- 0803 Galaxies, Interstellar Medium & Active Galactic Nuclei
- 0804 Cosmology, including Background Radiation
- 0805 High Energy Astrophysics, including Cosmic Rays, Neutrino, Gamma & X-Ray Astrophysics
- 0806 Radio- and Optical Astronomy
- 0807 Nuclear Astrophysics
- 0808 Interplanetary & Astrophysical Plasma

### **Condensed Matter Physics**

- 0901 Optical Phenomena/Properties
- 0902 Electronic Properties & Magnetism
- 0903 Crystalline Structure, Structural Phase Transitions, Defects, Mechanical Properties
- 0904 Dynamics, Dynamical Systems, Lattice Effects & Thermal Properties
- 0905 Inhomogeneous, Disordered, & Partially Ordered Systems
- 0906 Surfaces, Interfaces & Microstructures
- 0907 Low-Dimensional Systems
- 0908 Superfluidity & Superconductivity

### **Atomic & Molecular Physics**

- 1001 Atomic & Molecular Spectroscopy
- 1002 Atomic & Molecular Interactions
- 1003 Quantum Optics
- 1004 Ultra fast Phenomena
- 1005 Laser, Photonics

### **Optics, Acoustics, Electromagnetism**

- 1101 Optical and Magnetic Spectroscopy (including Instrumentation)
- 1102 Physical Optics, Nonlinear Optics
- 1103 Acoustics
- 1104 Electromagnetic Processes

### **Plasma Physics**

- 1201 Atomic Phenomena & Statistical Properties of Plasma
- 1202 Plasma Instabilities & Non-Linear Phenomena
- 1203 Low-Temperature Plasmas, Plasma Chemistry & Applications
- 1204 High-Temperature & Relativistic Plasmas
- 1205 Plasma Diagnostics & Plasma Sources
- 1206 Plasma Technology, Confinement

### **Materials (Physics, Chemistry, Biomedicine)**

- 1301 Dielectrics, Piezoelectrics, Ferroelectrics
- 1302 Semiconductors
- 1303 Metals & Alloys
- 1304 Ceramics, Cements & Composites
- 1305 Polymers

- 1306 Ionic Conductors & Mixed Oxide
- 1307 Colloids, Gels, Layered Structures
- 1308 Liquid Crystals, Liquids, Glasses (including Spin Glasses), & Disordered Media
- 1309 Surfaces
- 1310 Films, Coating, Wires & Fibers
- 1311 Granular Media, Clusters (including Fullerenes)
- 1312 Nanostructures, Quantum Dots, Nanotechnology
- 1313 Medical New Materials

### **Organic Chemistry**

- 1401 Synthesis & Growth
- 1402 Characterization
- 1403 Physical Organic Chemistry
- 1404 Supramolecular Chemistry

### **Inorganic Chemistry**

- 1501 Co-ordination & Organometallic Chemistry
- 1502 Bio-inorganic Chemistry
- 1503 Gas Phase Chemistry
- 1504 Solution Chemistry
- 1505 Solid State Chemistry
- 1506 Cluster Compounds
- 1507 Nuclear & Radiochemistry

### **Physical & Analytical Chemistry**

- 1601 Spectroscopy
- 1602 Electrochemistry
- 1603 Kinetics & Reaction Mechanisms
- 1604 Thermodynamics
- 1605 Ignition/Combustion
- 1606 Photochemistry
- 1607 Surface Chemistry
- 1608 Analytical Chemistry

### **Catalysis**

- 1701 Heterogeneous Catalysis
- 1702 Homogeneous Catalysis
- 1703 Enzyme Catalysis

### **Computational Chemistry**

- 1801 Reaction Mechanisms
- 1802 Molecular Modeling
- 1803 Quantum Chemical Methods
- 1804 Structure Study

### **Environmental Chemistry**

- 1901 Atmospheric
- 1902 Soil
- 1903 Water

### **Pharmaceutical Chemistry**

- 2001 Structure-Activity Relationship

- 2002 Formulation & Drug Delivery
- 2003 Modeling in Pharmaceutical Chemistry
- 2004 Biologically Active Compounds

### **General Biology**

- 2101 Evolutionary Biology
- 2102 Developmental Biology
- 2103 Nature Conservation & Biodiversity
- 2104 Theoretical Biology, Modelling of Biological Systems

### **Ecology**

- 2201 Aquatic Ecology
- 2202 Terrestrial Ecology (Agriculture, Forestry)
- 2203 Ecosystem Management

### **Plant Biology**

- 2301 Botany
- 2302 Plant Physiology
- 2303 Genetics of Plants, Plant Breeding
- 2304 Photosynthesis
- 2305 Phytopathology

### **Zoology**

- 2401 Animal Physiology
- 2402 Genetics of Animals, Animal Breeding
- 2403 Neurophysiology & Sensory Physiology
- 2404 Entomology
- 2405 Veterinary Sciences
- 2406 Parasitology
- 2407 Behavioral Biology

### **Microbiology**

- 2501 Clinical Microbiology
- 2502 Environmental Microbiology
- 2503 Genetics of Microorganisms
- 2504 Virology
- 2505 Mycology
- 2506 Bacteriology

### **Molecular Biology**

- 2601 Cytology
- 2602 Biochemistry
- 2603 Signal Transduction
- 2604 Proteins, Enzyme Function
- 2605 Bioinformatics
- 2606 Biophysics
- 2607 Bio-Energetics
- 2608 Nucleic Acids
- 2609 Molecular Neuroscience

### **Biotechnology**

- 2701 Agricultural Biotechnology

- 2702 Industrial Biotechnology
- 2703 Environmental Biotechnology
- 2704 New Methods in Diagnostics
- 2705 Biologically Engineered Drugs
- 2706 Vaccines
- 2707 Other Medical Biotechnology

### **Medicine**

- 2801 Internal Diseases & Internal Medicine
- 2802 Experimental & Clinical Oncology
- 2803 Immunology
- 2804 Epidemiology
- 2805 Pediatrics
- 2806 Surgery, Neurosurgery
- 2807 Anesthesiology
- 2808 Nuclear Medicine
- 2809 Psychiatry
- 2810 Medical Instrumentation, Radiology & Diagnostic Techniques
- 2811 Public Health
- 2812 Pharmacology & Toxicology
- 2813 Human Genetics

### **Geology**

- 2901 Geological Engineering & Geotechnics
- 2902 Metamorphism
- 2903 Marine Geology
- 2904 Paleontology
- 2905 Sedimentology
- 2906 Stratigraphy
- 2907 Tectonics
- 2908 Volcanology, Magmatism

### **Geochemistry**

- 3001 Petrology/Mineralogy
- 3002 Geothermal Chemistry
- 3003 Isotope Geochemistry
- 3004 Metalogeny
- 3005 Mineral Chemistry
- 3006 Petroleum Geology

### **Geophysics**

- 3101 Earth Observation Technologies & Remote Sensing
- 3102 Earthquake Prediction
- 3103 Electromagnetic Processes
- 3104 Exploration
- 3105 Geodynamics
- 3106 Mining
- 3107 Erosion
- 3108 Seismic Process, Elasticity

### **Atmospheric Studies**

- 3201 Atmospheric Dynamics & Thermodynamics

- 3202 Atmospheric Boundary Layer
- 3203 Upper Atmospheric Physics
- 3204 Land/Atmosphere Interactions
- 3205 Ocean/Atmosphere Interactions
- 3206 Meteorology/Climatology

### **Hydrology & Marine Sciences**

- 3301 Hydrology Engineering
- 3302 Hydrological Cycle & Processes
- 3303 Continental Water
- 3304 Underground Water
- 3305 Oceanography
- 3306 Flood & Drought Prediction
- 3307 Glacial & Cryospheric Systems

### **Environment**

- 3401 Climate & Climate Change
- 3402 Land/Ocean Interactions
- 3403 Pollution & Remediation (including Radioactivity)
- 3404 Waste Management
- 3405 Sustainable Rural/Urban Management
- 3406 Environmental Monitoring & Assessment
- 3407 Environmental Technologies & Instrumentation

### **Energy**

- 3501 Energy Systems including Efficiency & Reliability
- 3502 Energy Technology & Conversion
- 3503 Renewable Energy Sources
- 3504 Nuclear Engineering & Safety

### **General Engineering**

- 3601 General Methodology (Quality, Reliability, Standardization)
- 3602 Civil Engineering
- 3603 Mechanics
- 3604 Thermal Processes

### **Electricity, Electronics, Robotics & Telecommunications**

- 3701 Electricity
- 3702 Electronics / Instrumentation
- 3703 Telecommunication Systems & Networks
- 3704 Robotics

### **Aeronautics**

- 3801 Avionics
- 3802 Structures
- 3803 Engines
- 3804 Aerodynamics
- 3805 Environment
- 3806 Safety
- 3807 Ergonomics

### **Space**

- 3901 Space Platforms & Space Systems
- 3902 Launchers
- 3903 Physical and Life Sciences in Space
- 3904 Space Exploration & New Space Missions
- 3905 Experiments & Payloads

### **Economics**

- 4001 Microeconomics, including Industrial Organisation
- 4002 Public Economics, including Health, Education, & Welfare
- 4003 Macroeconomics & Monetary Economics
- 4004 Financial Economics, including Investment Theory
- 4005 International Economics, including International Trade
- 4006 Labour Economics
- 4007 Economic Development, Technological Change, & Growth
- 4008 Economic Systems, including Transition Economics
- 4009 Natural Resource Economics, Agricultural Economics, Environmental Economics
- 4010 Urban, Rural, & Regional Economics, including Transport Economics
- 4011 Business Administration

### **Social Studies**

- 4101 Sociology
- 4102 Social Institutions & Structures
- 4103 Demography
- 4104 Gender Studies
- 4105 Ethnology & Nationalities Studies
- 4106 Cultural & Social Anthropology
- 4107 Sociology & History of Religion
- 4108 Urban & Regional Planning
- 4109 Political Theory
- 4110 International Relations & Area Studies
- 4111 Security Studies
- 4112 Political Institutions & Public Policy Studies, Comparative Politics
- 4113 Public Opinion & Media Studies

### **Behavioural Sciences**

- 4201 Social Psychology
- 4202 Cognitive Science
- 4203 Perception, Personality
- 4204 Educational Research and Psychology

### **Juridical Studies**

- 4301 Jurisprudence & Theory Of Law
- 4302 History Of Law, Legal Systems, Constitutional Law
- 4303 International Law, EU Law
- 4304 Sectoral Law Studies(Public, Environmental, Private, Criminal, Commercial Law)

### **Historical Sciences**

- 4401 Ancient History
- 4402 Medieval History
- 4403 Modern History, including Contemporary History
- 4404 Economic History
- 4405 Historiography

- 4406 History of Ideas, History of Science
- 4407 Art History, including Musicology
- 4408 Prehistoric Archaeology
- 4409 Classical Archaeology
- 4410 Medieval/Byzantine Archaeology
- 4411 Anthropology & Ethnography

### **Philosophy**

- 4501 Ontology & Epistemology
- 4502 History of Philosophy
- 4503 Moral Philosophy, Ethics & Social Ethics
- 4504 Logic, Methodology & Philosophy of Science

### **Linguistics, Language & Literature Studies**

- 4601 Linguistic Theories
- 4602 Descriptive, Comparative & Historical Linguistics
- 4603 Descriptive, Comparative & Historical Philology
- 4604 Theory & History of Literature, Comparative Literary Studies
- 4605 Structural & Historical Analysis of Literary Texts
- 4606 Library & Archival Studies