Study Groups on Mathematics for Industry and Institutions, January 23th to 25th, 2012

The Study Groups on Mathematics for Companies and Institutions. i-MATH 2008 - 2011, are the Galician leading workshop for interaction between mathematicians and industrial representatives working within different economic sectors, The workshop will contribute to enhance the transfer of mathematical knowledge to industry. The main objectives are:

- To promote of Industrial Mathematics, looking actively for new research and development projects, in which mathematics is playings an important role.
- To enhance collaborative of R&D between i-MATH research groups and companies, solving problems that can be treated with mathematical, statistical or computational techniques.
- To unpdate the i-MATH Map for Mathematical Technology Demand.

Structure

These Study Groups on Mathematics for Companies and Institutions. i-MATH 2008 - 2011 follow the style of the European Study Groups with Industry (see http://www.maths-in-industry.org/). These are workshops where mathematicians work on problems that have been suggested by either industries or technology researchs. The problems to be studies are presented by companies on the first session. Afterwards mathematicians attending the workshop start working in groups, in brainstorming sessions of mathematical techniques. Finally, at the end of the event workgroups present their conclusions.

This edition was held on January 23th, to 25th, 2012 in Santiago de Compostela and its structure was as follows:

- Presentation of problems by companies attending the workshop.
- Distribution in work groups.
- Problem solving by work groups.
- Development of a brief document outlining general information: previous bibliography, difficulties and barriers,
- Conclusions and development of a final document.

Problems

The problems raised by the companies taking part in the Study Groups can be found and are shown below.

2 Mares de Demil: Selective retrieval of information

Description of the problem : Multimedia files divided into various "tranches" with temporary flags, each section

are labeled with certain information (Service, mood, type of interaction ...) There are a kind of users are the "customers" with its corresponding user profile (age, type of customer, contracted servicesĚ). There are other users who are the "Providers", with its corresponding user profile .

Objective: obtain a set of segments that define the behavior that led to this situation, based on information stored in each segment and customers and suppliers profile.

Vasco Gallega de Consignaciones: Design of a fixing system for transport of sheets

Description and objective: Get a lashing system in transporting sheets of granite to ensure compliance standard defined by the International Maritime Or-

ganization: the stowage should be ensure both load conditions and the container during transport. Transport in the worst case will be submitted to 0.8 longitudinal G or 1 G and 0.4 G transverse vertical. It should be made using inexpensive materials / non-returnable and may be considered used if it is folding carpenter. As a final phase would require a finite element model designed validase stowage.

Teaxul: Microwave rapid thawing

Description and objective: Quick defrost in the microwave using heat transfer models and design of equipment to

produce the right moves to achieve a homogeneous defrost. The proceedings with the conclusions will soon be available on the WEB at the following link: http://mathematica.nodo.cesga.es/content/view/339/40/.