

Some Digitization Initiatives in Spain

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Abstract. This is a short report including some news from Spain; a list of Spanish mathematical journals; information about the platform ReviCien and the Spanish/Catalan digitization project.

1. Introduction

Two outstanding events will take place in Spain in 2006: the International Congress of Mathematicians (ICM 2006 Madrid, August 22–30) and the IMU General Assembly (Santiago de Compostela, August 19–20).

For the Spanish mathematical community those events will mean to have a strong visibility inside and outside our frontiers, so they are a good opportunity to obtain supplementary funds for research and infrastructure. In order to be able to take advantage of that situation, we have undertaken several initiatives. I shall briefly explain those most directly related to electronic information and communication matters.

2. News and initiatives

First, there has been some reorganization of the Spanish IMU Committee, now called *Comité Español de Matemáticas* (Spanish Committee for Mathematics, <http://www.ce-mat.org>), with the participation of the main mathematical societies:

- RSME (Royal Spanish Mathematical Society), <http://www.rsme.es/>;
- SCM (Catalan Society of Mathematics),
<http://www.iecat.net/scm/>;
- SEMA (Spanish Society of Applied Mathematics),
<http://www.sema.org.es/>;

- SEIO (Spanish Society of Statistics and Operations Research),
<http://www.seio.es/>;
- SEIEM (Spanish Society for Research in Mathematics Education),
<http://www.uco.es/informacion/webs/seiem/>;
- FESPM (Federation of Spanish Societies of Mathematics Teachers),
<http://www.fespm.org/>;
- SEHCYT (Spanish Society for the History of the Sciences and Technologies),
<http://www.unirioja.es/sehcyt/>.

This committee publishes a News Bulletin every four months, and has created several sub-committees mirroring those of the IMU.

In particular there is a new Spanish *Electronic Information and Communication EIC subcommittee*, which is formed by Jaume Amorós (UPC Barcelona), Manuel González Villa (UCM Madrid), Rafael de la Llave (Austin, Texas), Juan Luis Varona (La Rioja) and Enrique Macias (Santiago de Compostela, Chair).

In September 2003 a workshop entitled *Science in the XXI Century: The Future of Electronic Publishing* was organized in El Escorial (Madrid) as a summer school with the participation of mathematicians, editors of scientific journals, librarians, lawyers and journalists. As a final result, a declaration about the need of supporting Spanish scientific journals was issued (<http://www.rsme.es/pe/portada.html>), and this has had a positive influence on the society and policy-makers. Later, there was some negotiation with both central and autonomous authorities in order to obtain funds for digitization. Presently, the perspectives look good, and more concrete results are anticipated in the near future.

Both SCM and RSME have had an active role in the discussion of the DML (Digital Mathematics Library) project, specially in the preparation with other European partners of a proposal for the FP6 Infrastructure Program of the European Union. Although the proposal, undertaken under the auspices of the European Mathematical Society, was eventually rejected for funding, it obtained a positive report and served to start our local digitization project.

2.1. Digitization

Twenty nine (29) Spanish scientific journals covering different areas are currently included in the ISI Science Citation Index. Four (4) of them are in mathematics.

At the end of this paper I have included our list for the digitization of the mathematical literature published in Spain (13 journals). It includes first class research journals as well as smaller journals well known by the Spanish mathematical community and more specialized journals.

A rough estimation of the number of pages to be digitized in Spain should not exceed 100,000 pages. As many journals have already done a part of the work by T_EX-typesetting the newer issues, the total number of pages could be smaller. On the other hand, many journals have old series, from the time when the Spanish community had less international projection in Mathematics. Also one has to take into account many extra and special issues.

Both RSME and SCM offer a digital version of their bulletins.

2.2. Institutions

The institutions involved in organizing and funding the Spanish digitization initiative are the following ones:

- The Spanish central government, through its Ministry of Education and Science (formerly Ministry of Science and Technology), which is developing a National Plan for Mathematics (2004–07) including, among other ambitious items, the creation of a National Mathematics Research Center (CNMAT) and financial support for research projects, digitization of scholarly literature and access to databases (<http://wwwn.mec.es/ciencia/>).
- CINDOC (*Centro de Información y Documentación Científica*) is a large center of information and scientific documentation (<http://www.cindoc.csic.es/>), with more than 100 personnel, mostly librarians and technicians. It depends on the CSIC (*Consejo Superior de Investigaciones Científicas*).
- The autonomous government of Catalonia (*Generalitat de Catalunya*), and the *Institut d'Estudis Catalans* (<http://www.iecat.net/>), which is prestigious cultural and scientific non-profit organization which supports for instance the CRM (*Centre de Recerca de Catalunya*).
- CBUC (<http://www.cbuc.es/>), which is the consortium of the university libraries of Catalonia.
- The mathematical societies and the Spanish EIC subcommittee cited above.

3. Portals and platforms

Some new tools for accessing scientific information are being developed in Spain.

3.1. Tecnociencia

Tecnociencia is a generalistic portal about Science and Technology in Spain (<http://www.penalty-@Mtecnociencia.es>). There you can find news, information about current research projects, and some succinct data about scientific journals. It depends on CINDOC-CSIC.

3.2. ReviCien

More focused on research will be *ReviCien* (*Revistas Científicas Españolas*, Spanish Scientific Journals). The idea is to build up an on-line platform for promotion and diffusion of the main scientific journals published in Spain.

ReviCien will offer links to 35 Spanish scientific journals covering the following areas:

Agricultural Sciences	Materials Science
Chemistry	Mathematics
Computer Science	Medicine
Earth Sciences	Neuroscience
Engineering Technology	Pharmacology and Toxicology
Environmental Sciences	Physics and Astronomy
Life Sciences	

While the abstracts of the papers will be in the server, the full texts will remain in the website of each journal.

3.2.1. Facilities

When you access to a given journal (e.g.

Biology>International Journal of Developmental Biology
>Vol 47, Num 6, September 2003),

you will access some basic information like publisher, editor, ISSN, scope of the journal and current issue. On each issue you will find the cover and the table of contents. For each article you will retrieve the author, title, abstract, keywords and a link to the full text when possible. ReviCien will offer some simple search facilities too.

A system of electronic alerts through e-mail will be organized, where subscribers will receive tables of contents and links to summaries and abstracts according to their preferences. They can also receive announcements of workshops and seminars related to a given journal. A Press Room will offer press releases, information about last events and e-alerts for journalists.

Finally, there will be a restricted area for journal editors to access in order to update or insert abstracts, keywords and links to the full texts, as well as to edit news of events and know the statistics of access to their journal.

4. Final remarks

Spain is currently participating in all worldwide coordination initiatives for digitization. We have first hand information about the work already done in several other countries. We shall adopt some established standards for digitization and metadata.

A particularity which may represent a technical challenge is multilinguality. While most papers are written in English, some older research papers and the societies' bulletins are in Spanish or Catalan – sometimes even in Basque or Galician.

Finally, the Spanish mathematical community assumes some responsibility towards Latin America in disseminating the digitization projects, promoting the use of databases and other research and bibliographical tools and organizing workshops, editing material, and contacting societies from Latin America. As an example, the first Joint Meeting of Latin American Mathematical Societies was held in Santiago de Compostela in September 2003 (<http://www.usc.es/imat/ESLM/>).

5. Mathematics journals published in Spain

- COLLECTANEA MATHEMATICA: Universitat de Barcelona (UB). 6 issues/year; Special issues = 8. Old series: 1948–2000, Vols. 1–51. New series: 2001–2003, Vols. 52–54.
<http://www.mat.ub.es/CM>
- REVISTA MATEMÁTICA IBEROAMERICANA: CSIC-RSME. 3 issues = 900 pages. Old series: 1944? New series: 1985–2003, Vols. 1–19.
<http://www.uam.es/departamentos/ciencias/matematicas/ibero/irevista.htm>
- TEST: Spanish Society of Statistics and Operations Research (SEIO). 2 issues/year = 400 pages. Old series: Trabajos de estadística 1950–1991. New series: 1992–2003.
<http://personales.unican.es/cofinoa/test/>
- PUBLICACIONES MATEMÁTICAS: Universitat Autònoma de Barcelona (UAB). 2 issues/year, Extra volumes. Old series: 1976–1987. New series 1988–2003, Vols. ?–47.
<http://mat.uab.es/pubmat/>
- REVISTA MATEMÁTICA COMPLUTENSE: Universidad Complutense de Madrid (UCM). 2 issues/year. Special issues. Old series: Revista Matemática de la UCM. New series 1988–2003, Vols. 1–16.
<http://www.mat.ucm.es/serv/revista/>
- EXTRACTA MATHEMATICAE: Universidad de Extremadura. 3 issues/year. Old series 1986–1994, Vols. 1–9. New series 1995–2003, Vols. 10–18.
<http://www.unex.es/extracta/extracta.html>
- SORT Statistics and Operations Research Transactions: Institut d'Estadística de Catalunya. Old series: Questii: Quaderns d'Estadística i Investigació Operativa. 2 issues/year 1977–2003, Vols. 1–27.
<http://www.seio.es/test/>
- TOP Journal of operations research: Spanish Society of Statistics and Operations Research (SEIO) 400 pages/year in two issues. Old series: Trabajos de Investigación Operativa (1950–1992)
<http://www.seio.es/top/>
- MATHWARE SOFT COMPUTING: Universitat Politècnica de Catalunya (UPC). 2 regular issues/year. 1 monographic issue/year = 1,500 pages. 1999–2003, Vols. 1–5.
<http://www.upc.es/ea-smi/mathware/ENG/mathware.html>
- QUALITATIVE THEORY OF DYNAMICAL SYSTEMS: Universitat de Lleida. 2000–2003, Vols. 1–3 (already in T_EX).
<http://www.udl.es/dept/matematica/ssd/qtlds/>

We also include the bulletins of mathematical and/or scientific societies as

- LA GACETA: Real Sociedad Matemática Española (RSME). 3 issues/year (Spanish). Old series: Gaceta Matemática ?–? New series: 1998–2003, Vols. 1–6.
<http://www.rsme.es/gaceta/lagaceta.htm>

- BUTLLETÍ: Societat Catalana de Matemàtiques (SCM). Old series: 1978–1985, Vols. 1–18 (Catalan). New series: 1985–2003, vols 1–18 (Catalan).
<http://www.iec.es/scm/>
- REVISTA (Serie A: Matemáticas): Real Academia de Ciencias Exactas, Físicas y Naturales.
<http://racefyn.insde.es/publicaciones/racsam/>

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