

## 1.12: Crystallography in Spain

In the context of this chapter, you will also be invited to visit these sections...

- [Crystallography in Spain. Brief historical outlines](#)
- [Participants in the Meeting on Anomalous Dispersion \(Madrid, 1974\)](#)
- [Some pictures taken during IUCr2011 \(Madrid, 2011\)](#)

Crystallography is one of the branches of Science whose importance has been critical to the development of Chemistry around the world. Its influence, which was spectacular in Spain during the last third of the twentieth century, led (through many efforts) to the establishment of several groups of crystallographers whose relevance is nowadays beyond any doubt. However, contrary to what happened in other developed countries, Crystallography in Spain, and especially in academic institutions, seems in general to remain an unresolved matter. This is probably due to the fact that it has erroneously been considered as a minor technical issue, whose application and interpretation is trivial.

No scientific discipline has so profoundly influenced the field of structural Biochemistry as that of X-ray diffraction analysis when applied to the crystals of macromolecules. It is among the most prolific techniques available for providing significant new data. In theory, there is no limit in molecular size, and thus it includes, in addition to proteins, the viruses, ribo- and deoxyribonucleic acids and protein complexes. Its influence has also affected the development of Biology and Biomedicine, leading to the so-called structural genomics. The detailed knowledge of the structure of biological macromolecules enables us not only to understand the relationship between structure and function, but also to make rational functional improvement proposals. In contrast with the importance of these issues, the rather large number of research groups in Spain (very competitive in Cellular and Molecular Biology), and the lack of resources dedicated to the few Spanish laboratories active in macromolecular Crystallography becomes very apparent.

In an separate part of this chapter the reader will find a [brief historical outline on the initial development of Crystallography in Spain](#).

Most crystallographers working in Spain are associated with the Specialized Group for Crystallography and Crystal Growth ([Grupo Especializado de Cristalografía y Crecimiento Cristalino, GE3C](#)), a group associated with the [Spanish Royal Society of Chemistry](#). Similarly, European crystallographers are associated with the [European Crystallographic Association, ECA](#).

Further, the [Spanish Committee of Crystallography](#) is the Spanish association responsible for coordinating the official Spanish representation to the [International Union of Crystallography, IUCr](#).

There are some other Spanish associations related to Crystallography, organized according to various radiation sources of interest in the field:

- [Spanish Association of Synchrotron Users \(AUSE\)](#)
- [Spanish Association for Neutron Techniques \(SETN\)](#)

 XXII Congress and General Assembly, Madrid 2011

Crystallographers working in Spain had the responsibility to organize the [XXII Congress and General Assembly](#) of the [International Union of Crystallography, IUCr](#), that was held in Madrid (August 22-30, 2011). This type of congress, held every three years in a different country, had in Madrid over 2,800 worldwide participants and implied an explicit recognition by the [IUCr](#) of the "Spanish crystallography". The event was officially supported by the [IUCr](#), the [Spanish Ministry of Science and Innovation](#), the [Spanish National Research Council \(CSIC\)](#), several Spanish universities (especially [Alcalá](#), [Complutense of Madrid](#), [Autonomous of Madrid](#), [UIMP](#), [Oviedo](#), [Cantabria](#) and [Barcelona](#)). Special mention has to be done to the support received by the [BBVA Foundation](#) (which specifically supported the participation of the [three 2009 Chemistry Nobel Laureates](#)). [AECID](#) and [Metro-Madrid](#) helped to the participation of a large number of young researchers from less developed countries. The "[Madrid Convention Bureau](#)" supported, in 2005, the preparation of the candidature of Spain to organize this unique event. Crystallographers working in Spain and specially those implied in the Local Organizing Committee, appreciate the support obtained from all these organizations.

[See also the contents of this link.](#)

The most relevant research groups located in Spain and using Crystallography as a main research tool can be found below. [See also the following link.](#)

Nine of the groups listed below made an association in the context of a joint project called **The Factory of Crystallization**, a collaborative project to create an integrated platform for research and services in crystallization and crystallography. The project was thought as a setting to combine advanced research on crystallization and crystallography and service delivery in these fields to companies and research groups in biomedical, pharmacological, biotechnological, nanotechnological, natural or material sciences. The aim was that any group extracting, synthesizing or, in general, developing a new molecule or potentially interesting material could have access, with an adequate level of confidentiality, to the knowledge and technology needed for crystallization, diffraction data collection and structure solution. The project was funded with € 5.0 M by the former Spanish Ministry of Education and Science (now **Ministry of Science and Innovation**), as part of the Consolider-Ingenio/2010 program.

The following information corresponds to a relatively splendid stage of Crystallography in Spain (during the first decade of the 21st century). Unfortunately, with the passage of time the situation has worsened, so many of the links shown below may no longer be operational..

The list of groups shown below may contain involuntary errors or omissions. Groups who would like to be included here should [get in contact through this link](#).

Select a region on the map

## Andalusia

### [Division for X-ray Diffraction, University of Cádiz](#)

Campus Universitario del Río San Pedro, E-11510 Puerto Real

### [General Service Unit, Institute for Materials Science of Seville \(CSIC-University of Seville\)](#)

Americo Vespuccio 49, Isla de la Cartuja, E-41092 Sevilla

### [Group of Coordination Chemistry and Structural Analysis, University of Granada](#)

Avda. Fuentenueva s/n, E-18071 Granada

### [Group of Organometallic Chemistry and Homogeneous Catalysis, Institute of Chemical Research \(CSIC-Universidad de Sevilla\)](#)

Américo Vespucio 49, E-41092 Sevilla

### [Group of Protein Structure, Department of Physical-Chemistry, Biochemistry and Inorganic Chemistry, University of Almería](#)

Edificio Científico Técnico de Química, Ctra. Sacramento, La Cañada de San Urbano, E-04120 Almería

### [Laboratory of Crystallographic Studies \(LEC\), CSIC-University of Granada](#)

Edificio Inst. López Neyra, Avenida del Conocimiento s/n, PT Ciencias de la Salud, E-18100 Armilla

### [X-ray Diffraction Service, University of Málaga](#)

Bulevar Louis Pasteur 33 , Campus de Teatinos, Edificio SCAI, Planta 1, B1-04, E-29071 Málaga

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## Aragon

### [Institute of Chemical Synthesis and Homogeneous Catalysis \(iSQCH\), CSIC-University of Zaragoza](#)

Pedro Cerbuna 12, E-50009 Zaragoza

### [Department of Physics of Condensed Matter, CSIC-University of Zaragoza](#)

Plaza de San Francisco s/n, E-50009 Zaragoza

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## Asturias

[Department of Physics, University of Oviedo](#)

Julián Clavería 8, E-33006 Oviedo

[Crystallography and Mineralogy, Department of Geology, University of Oviedo](#)

Jesús Arias de Velasco, E-33005 Oviedo

[Synthesis, Structure and Technological Application of Materials, Department of Physical and Analytical Chemistry, Faculty of Chemistry, University of Oviedo](#)

Julián Clavería 8, E-33006 Oviedo

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## Balearic Islands

No data available

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## Cantabria

[Group of High Pressure and Spectroscopy, Faculty of Sciences, University of Cantabria](#)

Avda. de los Castros s/n, E-39005 Santander

[Group of Matter Magnetism, University of Cantabria](#)

Avda. de los Castros s/n, E-39005 Santander

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## Canary Islands

[Laboratory of X-Rays and Molecular Materials](#), Department of Fundamental Physics II, University of La Laguna

Avda Astrofísico Francisco Sánchez s/n, E-38204 La Laguna

Some other groups (no web link) from the Dept. of Fundamental Physics II, making use of the [Integrated Service for X-Ray Diffraction, University of La Laguna](#)

Avda. Astrofísico Francisco Sánchez s/n, E-38206 La Laguna

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## Castile and León

[Department of Physics of the Condensed Matter, Crystallography and Mineralogy, University of Valladolid](#)

E-47002 Valladolid

[Structural Biology Group, Cancer Research Center, CSIC-University of Salamanca](#)

Campus Miguel de Unamuno, E-37007 Salamanca

[X-ray Diffraction Service, University of Burgos](#)

Plaza de Misael Bañuelos s/n, E-09001 Burgos

[X-ray Diffraction Service, University of Salamanca](#)

Plaza de la Merced s/n, E-37008 Salamanca

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## Castile - La Mancha

**Grupo de Química Organometálica y Catálisis, Facultad de Ciencias Químicas, Universidad de Castilla-La Mancha**

Avenida de Camilo José Cela 10, E-13071 Ciudad Real

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## Catalonia

**Department of Crystallography, Institute of Material Sciences of Barcelona, CSIC**

Campus de la Universidad Autónoma de Barcelona, E-08193 Bellaterra

**Department of Chemical Engineering, Polytechnic University of Catalonia**

Escola d'Enginyeria Barcelona Est, Campus Diagonal Besos, Building (EEBE) I 2.21, c/ Eduard Maristany 10-14, E-08019 Barcelona

**Department of Crystallography, Mineralogy and Mineral Deposits, Faculty of Geology, University of Barcelona**

c/ Martí i Franqués s/n, E-08028-Barcelona

**Department of Structural Biology, Institute of Molecular Biology of Barcelona, CSIC**

Parque Científico de Barcelona, Baldiri i Reixach 15-21, E-08028 Barcelona

**Group for Physics and Crystallography of Nanomaterials, Faculty of Chemistry, University Rovira i Virgili**

Marcel·li Domingo s/n, Campus Sescelades, E-43007 Tarragona

**Unit for X-ray Diffraction, Autonomous University of Barcelona**

Campus de la Universidad Autónoma de Barcelona, E-08193 Bellaterra

**X-ray Diffraction Unit, Institute of Chemical Research of Catalonia**

Avgda. Països Catalans 16, E-43007-Tarragona

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## Extremadura

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## Galicia

**Metallosupramolecular Chemistry Group (QI5)**

Universidad de Vigo, Facultad de Química, E-36310 Vigo

**Research Group on Molecular and Structural Chemistry (GIQIMO), University of Santiago de Compostela**

Campus Universitario Sur, E-15782 Santiago de Compostela

**Structural Analysis Unit, Service for Research Support, University of A Coruña**

E-15001 A Coruña

**Support Center for Science and Technology, University of Vigo**

Facultad de Química, E-36310 Vigo

**X-ray Unit, University of Santiago de Compostela**

Edificio CACTUS, Campus Universitario Sur s/n, E-15782 Santiago de Compostela

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## La Rioja

Central X-ray Diffraction Unit (no web site). Somehow dependent from the [Department of Chemistry, University of La Rioja](#)  
Avda. de La Paz 93, E-26006 Logroño

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## Madrid

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[Crystal Growth Laboratory, Department of Material Physics, Faculty of Sciences, Autonomous University of Madrid](#)

Campus de Cantoblanco, E-28049 Madrid

[Crystallography Group of the UAH, Department of Inorganic Chemistry, University of Alcalá de Henares \(UAH\)](#)

Campus Universitario, E-28871 Alcalá de Henares

[Department of Analytical Sciences, Faculty of Sciences, Universidad Nacional a Distancia \(UNED\)](#)

Senda del Rey 9, E-28080 Madrid

[Department of Crystallography and Mineralogy, Faculty of Geological Sciences, University Complutense of Madrid](#)

José Antonio Novais 2, E-28040 Madrid

[Department of Crystallography and Structural Biology, Institute of Physical-Chemistry Rocasolano, CSIC](#)

Serrano 119, E-28006 Madrid

Some group (with no web link) at the [Department of Inorganic Chemistry I, University Complutense of Madrid](#)

Ciudad Universitaria, E-28040 Madrid

Department of Macromolecular Structures, National Center for Biotechnology, CSIC

Darwin 3, Campus de Cantoblanco, E-28049 Madrid

[Structural biology of viral fibres](#)

[Cell-Cell and Virus-Cell Interactions](#)

[Group of Structural Biology of Proteins, Centre for Biological Research, CSIC](#)

Ramiro de Maeztu 9, E-28040 Madrid

Institute of Material Sciences of Madrid, CSIC

Cantoblanco, Ctra. de Colmenar Km. 15, E-28049 Madrid

[Department of Energy, Environment and Sustainable Technologies](#)

[Department of New Architectures in Materials Chemistry](#)

National Center for Cancer Research, CNIO

Melchor Fernández Almagro 3, E-28029 Madrid

[Cell Signalling and Adhesion Group](#)

[Crystallography and Protein Engineering Unit](#)

[Structural Bases of Genome Integrity Group](#)

[Single Crystal Unit, Faculty of Chemistry, University Complutense of Madrid](#)

Edificio C (Aulario), Planta Sótano, Ciudad Universitaria, E-28040 Madrid

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## Murcia

**Department of Mining, Geological and Cartographic Engineering, Area of Chemistry, Technical University of Cartagena**

Campus Muralla del Mar, E-30202 Cartagena

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## Navarre

**Group of Physical Properties and Applications of Materials, Public University of Navarre**

Edificio Departamental de los Acebos, Campus Arrosadía, E-31006 Pamplona

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## The autonomous city of Ceuta

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## The autonomous city of Melilla

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## The Basque Country

**Biophysics Unit, CSIC-University of the Basque Country**

Campus de Leioa, E-48940 Leioa

**Department of Mineralogy and Petrology, Faculty of Science and Technology, University of the Basque Country**

Campus de Leioa, E-48940 Leioa

**Department of Inorganic Chemistry, Faculty of Science and Technology, University of the Basque Country**

Campus de Leioa, E-48940 Leioa

**Group of Magnetism and Magnetic Materials, Faculty of Science and Technology, University of the Basque Country**

Campus de Leioa, E-48940 Leioa

**Group of Structural and Dynamical Properties of Solids, Faculty of Science and Technology, University of the Basque Country**

Campus de Leioa, E-48940 Leioa

**Structural Biology Unit, CIC bioGUNE**

Ed. 801 A, Parque Tecnológico de Vizcaya, E-48160 Derio

**X-ray Diffraction Service of the University of the Basque Country**

Campus de Leioa, 40 Leioa

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## Valencia

**Department of Geology, University of Valencia**

Doctor Moliner 50, E-46100 Burjassot

Some group (with no web link) at the **Department of Inorganic Chemistry, University of Valencia**

Doctor Moliner 50, E-46100 Burjassot

Some group (with no web link) at the **Department of Organic Chemistry, University of Valencia**

Doctor Moliner 50, E-46100 Burjassot

Some group (with no web link) at the [Department of Inorganic and Organic Chemistry, University Jaume I](#)

Campus del Riu Sec, E-12071 Castellón de la Plana

[Institute for Biomedicine of Valencia, CSIC](#)

Jaime Roig 11, E-46010 Valencia

[Unit for Structural Enzymopathology](#)

[Unit for Macromolecular Crystallography](#)

[Unit for Signal Transduction](#)

[Molecular Materials Research Group, Department of Chemistry, Physics and Analytics, University Jaume I](#)

Campus del Riu Sec, E-12071 Castellón de la Plana

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