CURRICULUM VITAE SUMMARY (27 April 2023):

NAME: RODRIGUEZ-CARVAJAL Juan
QUALIFICATION: Doctor in Physics (Solid State), University of Barcelona 1984.
PRESENT POSITION: Staff Senior Scientist at ILL
LANGUAGES: Spanish, French and English.
Research and Teaching experience in Condensed Matter Physics and Crystallography for forty years.

Juan Rodriguez-Carvajal (JRC) has a long experience in diffraction physics of neutrons. He is an experimentalist with a strong component in computing and theoretical aspects of diffraction. He got his PhD in Solid State Physics at the University of Barcelona in 1984 and held different teaching positions in two of the three universities of Barcelona up to 1986, when he got a position as a scientist researcher at the CSIC in the Materials Science Institute of Barcelona. From 1988 to 1994 he was Physicist at the ILL (in charge of D4 and lately of D9) and in secondment at the LLB (Saclay) from 1992 (responsible of D1A). From 1994 to 2006, he was working at the LLB, as CEA research engineer, and he came back to the ILL to take the direction of the Diffraction Group. During his career at CEA he was promoting and was in charge of two instrumental projects: G4.2, in partnership with the PNPI at Gatchina-Petersburg (Russia) and the upgrading of the thermal neutron powder diffractometer 3T2.

JRC has been involved in large-scale projects for developing new neutron sources, in particular the European Spallation Source (ESS). He was the Coordinator for the Structural Science and Solid State Chemistry group of the Scientific Case of the ESS project (1995-1996); he was member of the Instrumentation Task Group of the ESS (2000-2002) and member of Scientific Advisory Committee of the ESS (2009-2012). JRC has participated in many committees and selection panels for research projects in large-scale facilities, in particular at ISIS (U.K.), PSI (Switzerland) and SNS (USA). JRC has, and has had a strong activity in training young researchers through many courses on diffraction and crystallography organized by universities and research institutions in many places of the world.

JRC has been the head of the Diffraction Group at ILL from March 2006 to October 2013. The diffraction group is in charge or the 12 beam lines: 3 monochromatic single crystal diffractometers, 2 single crystal polarized neutron diffractometers, 2 Laue diffractometers, 3 powder diffractometers, 1 amorphous and liquid diffractometer and 1 engineering diffractometer. Presently he has returned to full time scientific research and software development within the ILL.

During the major part of his career, JRC has been interested in data analysis and software development in crystallography and diffraction physics; magnetic structures, frustration and low dimensional magnetism; superconductivity, metal-Insulator transitions, intermetallics, oxides presenting colossal magnetoresistance, charge, spin and orbital ordering phenomena. More recently, JRC has been interested in energy materials, mostly oxides and phosphates, used as cathode elements in Ni and Li-ion batteries and molecular multiferroics.

Author/**co-author** of **287** regular papers in journals, **109** papers in journals resulting from proceedings, **61** reports/book/proceedings contributions and about **300** communications in meetings. The total number of article citations is more than **26060** (Web of Science), **40820** (Google Scholar). **Invited** to more than 90 international events. **Supervisor** of 10 doctoral theses, 28 stages and post-docs.
Awarded: "*Award for Distinguished Powder Diffractionist*" from the International Committee of EPDIC (Warsaw, 2008), *Barrett Award* 2011 of the Denver X-ray Conference for "exceptional contributions to powder diffraction".
Author of **FULLPROF**, one of the most used diffraction computer programs in the world. (More than 14000 citations of the article Physica **B 192**, 55 (1993) plus more than 8000 direct citations of the use of the program).

DETAILS OF PROFESSIONAL POSITIONS HELD

1. Teaching positions in different universities (Universidad de Tarragona, Universidad de Barcelona, Universidad Politécnica de Barcelona) and temporary research positions at Laboratoire de Cristallographie in Grenoble from 1979 to 1986.
2. "Investigador Científico" at the Consejo Superior de Investigaciones Científicas. Instituto de Ciencia de Materiales de Barcelona (February 1986 to January 1988).
3. Physicist at the I.L.L. since February 1988 to 31 June 1994. Co-responsible of D4 until April 1991 and afterward co-responsible of D9. College 5B secretary ("Crystal Physics and Magnetism") from June 1990 to July 1992.
4. "Colaborateur Temporaire Etranger" at the Comissariat à l'Energie Atomique (CEA), Laboratoire Léon Brillouin (LLB) at the Centre d'Etudes de Saclay (20 August 1992 to 20 February 1993).
5. "Directeur de Recherches" Associé at the CNRS. Contract from February 20, 1993 to February 20, 1994. Research activity at LLB, Centre d'Etudes de Saclay (CEA-CNRS).
6. CEA Engineer (E6), "Physicien Chercheur" at Laboratoire Léon Brillouin, Centre d'Etudes de Saclay, from July 1, 1994 up to 28 February 2006. From January 2001 to december 2002 I was also working in the "Service de Physique Statistique, Magnétisme et Supraconductivité" of CEA/Grenoble.
7. Physicist at the Institut Laue-Langevin, Diffraction Group Leader, from March 1, 2006 to October 2013, Grenoble.
8. Staff Senior Scientist at the Institut Laue-Langevin, from October 1, 2013, Grenoble.

MEMBERSHIP OF SCIENTIFIC INSTITUTIONS AND COMMITTEES

- Coordinator for the Structural Science and Solid State Chemistry group of the Scientific Case of the European Spallation Source project (1995-1996)
- Member of the College 5B, "Magnetism" committee, at the ILL from April 1997 to April 2000.
- Chairman of the College 5B, "Magnetism" committee, at the ILL from April 2000 to October 2001.
- Member of the Neutron Scattering Commission of the International Union of Crystallography (from August 1999).
- Member of the Instrumentation Task Group of the European Spallation Source project.
- Member of the "Comité de Programme" of the French CRG (Collaborative Research Group) beam lines at the ESRF (European Synchrotron Radiation Facility). From October 1999 to December 2003.
- Member of the Scientific Committee of the SINQ neutron facility at PSI from June 2004 to June 2006.
- Member of the AFP-I of the ISIS neutron facility at RAL, from June 2005 to November 2007.
- Member of the ORNL Neutron Scattering Science Review Committee (from October 2010)
- Member of the SAC of the European Spallation Source project (Lund, from June 2010 to January 2012).
- Expert member of the College 5B at the ILL from April 2015 to September 2018

SCIENTIFIC BACKGROUND AND RESEARCH ACTIVITIES

Experimental techniques and topics of research before moving to France (1978-1987)

- Emission Mössbauer Spectroscopy in 57Co, Electron capture, after-effects, point defects. Absorption Mössbauer Spectroscopy in Spinels, Perovskites and Hexaferrites. Charge states, cationic distribution, cation coordination, anionic vacancies.
- Structure determination by X-ray, Electron and Neutron diffraction. Direct methods, Patterson, Rietveld Method, nuclear and magnetic structures.
- Magnetic properties of oxides. Anisotropy, ferrimagnetism, spin-glasses, weak ferromagnetism, small particles.
- High Resolution Electron Microscopy. Anionic Vacancy Ordering in non-stoichiometric perovskites (oxides). Lattice image simulation in HREM, order-disorder, superstructures.
- Energy, potential, electric field and electric field gradient in ionic crystals. Lattice sums, Fourier series, dipolar contribution to the EFG, Bertaut method.

Current scientific interests

1. – Data analysis and software development in Crystallography and Diffraction Physics.
2. – Theoretical analysis of magnetic Structures. Frustration and low dimensional magnetism.
3. – Physics of Transition Metal-Rare Earth and Superconducting oxides and intermetallics.
   - Metal-Insulator Transitions and Magnetic Ordering in nickel and copper oxides.
   - Magnetic structures of Rare Earth Intermetallics.
   - Structural and magnetic aspects of oxides presenting colossal magnetoresistance and charge, spin and orbital ordering phenomena.
4. – Structure, magnetism and ionic conduction in materials for energy (batteries, hydrogen storage, etc.)
5. – Multiferroic materials

List of the 15 most cited publications (Web of Science, 27 April 2023)

1: "Recent Advances in Magnetic Structure Determination by Neutron Powder Diffraction"
Juan Rodríguez-Carvajal.
Physica B **192**, 55-69 (1993) **Citations 11.926**

2: "WinPLOTR: a Windows tool for powder diffraction patterns analysis"
T. Roisnel and J. Rodríguez-Carvajal.
Materials Science Forum **378-381**, 118-123 (2001). **Citations 1.535**

3: "Neutron Diffraction Study of the Jahn-Teller Transition in Stoichiometric $LaMnO_3$"
J.Rodríguez-Carvajal, M. Hennion, F.Moussa, A.H. Moudden, L. Pinsard and A. Revcolevschi
Physical Review **B 57**, *Rapid Communications*, R3189-R3192 (1998) **Citations 623**

4: "Neutron Diffraction Study of $RNiO_3$ (R=La, Pr, Nd, Sm). Electronically Induced Structural Changes Across the Metal-Insulator Transition",
J.L. García-Muñoz, J. Rodríguez-Carvajal, P. Lacorre and J.B. Torrance.
Physical Review **B 46**(8), 4414-4425 (1992) **Citations 457**

5: "Neutron Diffraction Study on Structural and Magnetic Properties of La_2NiO_4",
J. Rodríguez-Carvajal, M.T. Fernández and J.L. Martínez.
Journal of Physics: Condensed Matter **3**, 3215-3234 (1991) **Citations 426**

6: "Spin waves in the antiferromagnet perovskite $LaMnO_3$: a neutron scattering study", F.Moussa, M. Hennion, J.Rodríguez-Carvajal, L. Pinsard and A. Revcolevschi
Physical Review **B 54** (21), 15149-15155 (1996) **Citations 315**

7: "Electronic Crystallization in a Lithium Battery Material: Columnar Ordering of Electrons and Holes in the Spinel $LiMn_2O_4$.",
J.Rodríguez-Carvajal, G. Rousse, C. Masquelier and M. Hervieu.
Physical Review Letters **81**, 4660-4663 (1998). **Citations 298**

8: "Magnetic structure of triphylite $LiFePO_4$ and its delithiated form $FePO_4$", G. Rousse, J. Rodríguez-Carvajal, S. Patoux, C. Masquelier.
Chemistry of Materials **15**(21), 4082-4090 (2003). **Citations 287**

9: "Zener Polaron Ordering in Half-Doped Manganites"
A Daoud-Aladine, J. Rodríguez-Carvajal, L. Pinsard-Gaudart, M.T. Fernández-Díaz and A. Revcolevschi
Physical Review Letters **89**(9), 097205 (2002). **Citations 272**

10: "Structural Characterization of R_2BaCuO_5 (R=Y, Lu, Yb, Tm, Er, Ho, Dy, Gd, Eu and Sm) Oxides by X-Ray and Neutron Diffraction", A. Salinas-Sánchez, J.L. García-Muñoz, J. Rodríguez-Carvajal, R. Sáez-Puche and J.L. Martínez.
Journal of Solid State Chemistry **100**, 201-211 (1992). **Citations 271**

11: "Spin structure and magnetic frustration in multiferroic RMn_2O_5 (R=Tb,Ho,Dy)"
G.R. Blake, L.C. Chapon, P.G. Radaelli, S. Park, N. Hur, S-W. Cheong and J. Rodríguez-Carvajal.
Physical Review **B 71**, 214402 1-9 (2005). **Citations 245**

12: "Liquidlike Spatial Distribution of Magnetic Droplets Revealed by Neutron Scattering in $La_{1-x}Ca_xMnO_3$."
M. Hennion, F.Moussa, G. Biotteau, J.Rodríguez-Carvajal, L. Pinsard and A. Revcolevschi
Physical Review Letters **81**, 1957-1960 (1998). **Citations 215**

13: "Prediction of crystal structure from crystal chemistry rules by simulated annealing"
J. Pannetier, J. Bassas-Alsina, J. Rodríguez-Carvajal, V. Caignaert.
Nature **346**(6282), 343-345 (1990). **Citations 198**

14: "Magnetic Frustration and Lattice Dimensionality in $SrCr_8Ga_4O_{19}$", X. Obradors, A. Labarta, A. Isalgué, J. Tejada, J. Rodríguez and M. Pernet.
Solid State Communications **65**(3), 189-192 (1988) **Citations 188**

15: "Neutron-Diffraction Study of the Magnetic-Ordering in the Insulating Regime of the Perovskites $RNiO_3$ (R=Pr and Nd)", J. L. Garcia-Munoz, J. Rodríguez-Carvajal, and P. Lacorre.
Physical Review **B 50**(2), 978-992 (1994). **Citations 170**

String for "Author" to be used in ISI Web of Science for *General Search* or *Cited Ref Search*:
AU=(Rodriguez-Carvajal J or RodriguezCarvajal J or "Carvajal JR" or ("Rodriguez J" and (Obradors or Pannetier or Paulus or GonzalezCalbet or "Fontcuberta J" or ValletRegi or Gali))), then eliminate management, biological and medical sciences. The time span should start at 1980 otherwise some wrong references may appear.

Current h-index: 56 (Web of Science), 72 (Google Scholar)
https://www.ill.eu/users/scientific-groups/diffraction/people/juan-rodriguez-carvajal/
http://www.researcherid.com/rid/C-4362-2008
https://scholar.google.fr/citations?user=mJgatLIAAAAJ&hl=fr