

**PABLO VELASCO, Ph.D.**  
New York University  
Center for Brain Imaging  
6 Washington Place, Room 157  
New York, NY 10003  
(212) 992-8748  
pablo.velasco@nyu.edu  
github.com/pvelasco

## PROFESSIONAL AND RESEARCH ACTIVITY

- 2010 to present** New York University - Center for Brain Imaging  
Senior Research Scientist.  
**Chief MRI Physicist:** Overseeing operations of the Center, managing of staff, user support, protocol development and optimization, pre-processing tools, graduate student teaching, QA procedures, equipment and software, and new scanner installation.  
Imaging Preprocessing tools: Creator and main contributor to Bidsphysio (github.com/cbinyu/bidsphysio); contributor to Heudiconv (github.com/nipy/heudiconv)
- 2005 to 2009** New York University - Center for Brain Imaging  
Assistant Research Scientist.  
**MRI Physicist:** Image reconstruction and processing, sequence programming, QA procedures, equipment and software documentation and user support.
- 2009** MRI consultant for HBO television series.
- 2003 to 2004** New York University - Center for Neural Science  
Postdoctoral Sloan-Swartz Fellowship  
*Study of human visual perception: visual integration into a global motion perception.*
- 1997 to 2002** Institute of Materials Science of Madrid -  
The Spanish High Council of Scientific Research (CSIC)  
  
Thesis: *Synthesis and characterization of new  $Tl_2Mn_2O_7$ -related pyrochlores with colossal magnetoresistance properties.*
  - August to December 2002: Postdoctoral Research Grant
  - January to June 2002: Research Grant
  - January 1998 to December 2001: Scholarship from the Spanish Ministry of Education and CultureSupervisors: Profs. J. L. Martínez Peña and J. A. Alonso Alonso.  
1997: Young Scientist Grant  
*Synthesis and structural characterization of  $GeCuO_3$*   
Supervisor: Prof. I. Rasines.
- September 1995 to December 1996** Complutense University of Madrid -  
Materials Science Department, Faculty of Physics  
Research Assistant in the study of the *induction of helical anisotropies in low-magnetostriction amorphous ribbons*  
Supervisors: Prof. C. Aroca and Dr. E. López

## ACADEMIC APPOINTMENTS

2011 New York University - School of Medicine  
Research Assistant Professor (Radiology).

## EDUCATION

Autónoma University of Madrid (ranked the top university in Spain for Physics)

- 2002: Ph. D. in Physics (Materials)
- 2002: European Doctorate

Complutense University of Madrid (ranked the #1 university in Spain)

- 1997: Graduate in Physics with a specialty in Physics of Materials
- 1997: Extraordinary Graduate Award (1st in class)
- November 1995: "Class of '60 Physics" Award

## TEACHING EXPERIENCE

- "[Functional Magnetic Resonance Imaging Lab](#)" graduate course for the Center for Neural Science and Psychology Department. **New York University**. 2009-present.
- "Functional Brain MRI" - Invited lecture for "Advanced MRI" graduate course for the Vilcek Institute of Graduate Biomedical Sciences. **New York University School of Medicine**. 2010-present.

## PROGRAMMING SKILLS

- Python, Matlab, Bash, Git, CD/CI

## PUBLICATIONS

1. Y. Aoki, Y.N. Yoncheva, B. Chen, T. Nath, D. Sharp, M. Lazar, P. Velasco, M.P. Milham, A. Di Martino "Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder: A Categorical and Dimensional Investigation of White Matter Structure." *JAMA Psychiatry* 1120-1128 **74** (2017)
2. P. Velasco and S.J. Inati "Non-linearity in diffusion-gradient induced eddy-current fields in a head only 3T scanner." *Proc. of the ISMRM 2008 conference* 1825 (2008).
3. P. Velasco, J.A. Alonso, M.T. Casais, M.J. Martínez-Lope and J.L. Martínez "Analysis of magnetotransport data of  $Tl_2Mn_2O_7$  pyrochlore: evidence for half-metallicity." *J. Phys.: Cond. Matter* 8725 **16** (2004).
4. M. Venkatesan, P. Velasco, J.A. Alonso, J.L. Martínez and J.M.D. Coey "Powder magnetoresistance of  $Tl_2Mn_2O_7$  related compounds." *J. Phys.: Cond. Matter* 3465 **16** (2004).
5. A. P. Douvalis, M. Venkatesan, P. Velasco, C. B. Fitzgerald, and J. M. D. Coey "Combustion synthesis of the magnetoresistive double perovskite  $(Ba_{1.6}Sr_{0.4})FeMoO_6$ ." *J. App. Phys.* 8071 **93** (2003).
6. P. Velasco, J.A. Alonso, V.G. Tissen, W.G. Marshall, M.T. Casais, M.J. Martínez-Lope and J.L. Martínez "Pressure effect in the structure, transport properties and magnetic interactions of  $Tl_2Mn_2O_7$  pyrochlore derivatives." *Phys. Rev. B.* 104403 **67** (2003).
7. P. Velasco, J.A. Alonso, M.T. Casais, M.J. Martínez-Lope, J.L. Martínez and M.T. Fernández-Díaz "Influence of charge-carrier density on the magnetic and magneto-transport properties of  $Tl_{2-x}Cd_xMn_2O_7$  pyrochlores ( $x \leq 0.2$ )." *Phys. Rev. B.* 174408 **66** (2002).
8. P. Velasco, J. Mira, F. Guinea, J. Rivas, J.A. Alonso and J.L. Martínez "First order transition and phase separation in colossal magnetoresistance pyrochlores." *Phys. Rev. B.* 104412 **66** (2002).

9. P. Velasco, J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez “Manganese pyrochlores with colossal magnetoresistance.” **High Pressure Research**, 563 - 568 **22** (2002).
10. V. Tissen, P. Velasco, J.L. Martínez, A. de Andrés, C. Prieto, J.A. Alonso, M.T. Casais, M.J. Martínez-Lope, “Pressure dependence of the transport and magnetic properties of colossal magnetoresistance  $Tl_2Mn_2O_7$  pyrochlore system.” **High Pressure Research**, 143-146 **22** (2002).
11. P. Velasco, J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez, M.T. Fernández-Díaz “Magnetic and transport properties of a Pb substituted  $Tl_2Mn_2O_7$  pyrochlore.” **Journal of Magnetism and Magnetic Materials**, 725-728 **242-245**, (2002).
12. M.C. Viola, M.J. Martínez-Lope, J. A. Alonso, P. Velasco, J.L. Martínez, J.C. Pedregosa, R.E. Carbonio, M.T. Fernández-Díaz “Induction of colossal magnetoresistance in the double perovskite  $Sr_2CoMoO_6$ .” **Chem. Mater.** 812 **14** (2002).
13. P. Velasco, J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez, M.T. Fernández-Díaz “Synthesis and properties of  $Tl_2Mn_{2-x}Ti_xO_7$  pyrochlores with colossal magnetoresistance.” **J. Phys.: Cond. Matter.** 10991 **13** (2001).
14. P. Velasco, J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez, M.T. Fernández-Díaz, J.M. de Paoli “Electron injection in Te-doped derivatives of  $Tl_2Mn_2O_7$  pyrochlore.” **Phys. Rev. B.** 184436 **64** (2001).
15. J.A. Alonso, P. Velasco, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez, M.T. Fernández-Díaz “A novel series of Cd-substituted  $Tl_2Mn_2O_7$  pyrochlores with unprecedented magnetoresistance.” **Appl. Phys. Lett.** 3274-3276 **76** (2000).
16. J.A. Alonso, M.T. Casais, M.J. Martínez-Lope, J.L. Martínez, P. Velasco, A. Muñoz, M.T. Fernández-Díaz “Preparation, crystal structure, magnetic and magnetotransport properties of the double perovskite  $Ca_2FeMoO_6$ .” **Chem. Mater.** 161-168 **12** (2000).
17. J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, P. Velasco, J.L. Martínez, M.T. Fernández-Díaz, J.M. de Paoli, “Enhancement of ferromagnetic coupling in Sb-substituted  $Tl_2Mn_2O_7$  pyrochlores.” **Phys. Rev. B.** R15 024-027 **60** (1999).
18. M. Rodríguez, P. Velasco, C. Aroca, E. López, M.C. Sánchez, P. Sánchez, “Different mechanism of induced helical anisotropy in low-magnetostriction amorphous ribbons.” **J. Magn. Magn. Mat.** 220-222 **177-181** (1998).

## PRESENTATIONS AT CONFERENCES

19. H Pardoe, A George, S Martin, P Velasco, O Devinsky, “Video-based head motion assessment for improved quantitative neuroanatomy studies.” E-poster at the **ISMRM 2019 conference**. Montreal (Canada) 11-16 May 2019.
20. RA Shewcraft, K Brown, P Velasco, B Pesaran, “Mapping frontal-parietal functional connectivity with functional MRI during optogenetic stimulation in macaque monkey.” Poster at the **Society for Neuroscience 2015 Meeting**. Chicago, IL (USA) 17-21 October 2015.
21. K Brown, RA Shewcraft, P Velasco, B Pesaran, “A comparison of single and multi-shell diffusion-weighted MRI imaging in the anesthetized macaque for thalamocortical tractography.” Poster at the **Society for Neuroscience 2015 Meeting**. Chicago, IL (USA) 17-21 October 2015.
22. S Inati, P Velasco, E Vessel, “A New Method for Robust Functional to Structural Alignment Using Multi-echo GRE B0 and R2\* Mapping.” Poster at the **OHBM 2011 Meeting**. Quebec City (Canada) 26-30 June 2011.
23. D Schluppeck, E. P. Merriam, R.-M. Sanchez-Panchuelo, S. Francis, R. Bowtell, P. Velasco, S. Inati, D. J. Heeger, “Assessing the spatial precision of high-resolution echo-planar functional MRI at 3T and 7T.” Poster at the **Society for Neuroscience 2010 Meeting**. San Diego, CA (USA) 13-17 November 2010.
24. P. Velasco and S.J. Inati “Non-linearity in diffusion-gradient induced eddy-current fields in a head only 3T scanner.” Poster at the **ISMRM 2008 conference**. Toronto (Canada) 4-9 May 2008.
25. P. Velasco and N. Rubin, “Perception of the Motion of a Rotating Ellipse.” Poster at the **IV Vision Sciences Society Meeting**. Sarasota, FL (USA) 30 April-5 May 2004.

26. P. Velasco, J.A. Alonso, V.G. Tissen, W.G. Marshall, M.T. Casais, M.J. Martínez-Lope, A. de Andrés, C. Prieto and J.L. Martínez, "The effect of pressure on the structure, transport properties and magnetic interactions in the  $Tl_2Mn_2O_7$ -related pyrochlores." Poster at the **Second National Meeting of Solid State Physics**. Calella (Spain) 6-8 February 2002.
27. P. Velasco, J.L. Martínez, J.A. Alonso, M.T. Casais and M.J. Martínez-Lope, "CMR in the pyrochlores  $Tl_2Mn_2O_7$ ." Presentation at the **Second Meeting of the Spanish Magnetoresistance Network**. Calella (Spain) 5 February 2002.
28. V. Tissen, P. Velasco, J.L. Martínez, A. de Andrés, C. Prieto, J.A. Alonso, M.T. Casais, M.J. Martínez-Lope, "Pressure dependence of the transport and magnetic properties of colossal magnetoresistance pyrochlore system." Presentation at the **XXXIX European High Pressure Meeting**. Santander (Spain) 16-19 September 2001.
29. P. Velasco, J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez "Manganese pyrochlores with colossal magnetoresistance." Poster at the **XXXIX European High Pressure Meeting**. Santander (Spain) 16-19 September 2001.
30. P. Velasco, J.A. Alonso, M.J. Martínez-Lope, M.T. Casais, J.L. Martínez, M.T. Fernández-Díaz "Magnetotransport properties for  $Tl_{2-x}Pb_xMn_2O_7$  pyrochlores." Poster at the **Joint European Magnetic Symposia**. Grenoble (France) 28 August-1 September 2001.
31. P. Velasco, J.L. Martínez, J.A. Alonso, M.T. Casais, M.J. Martínez-Lope, M.T. Fernández-Díaz "Direct experimental relation between low density carrier and CMR in  $Tl_2Mn_2O_7$  compounds." Presentation at the **18th General Conference of the Condensed Matter Division of the European Physical Society**. Montreux (Switzerland) 13-17 March 2000.
32. M. García-Hernández, A. de Andrés, L. Martín-Carrón, A. Muñoz-Martín, P.J. Velasco-Pérez, C. Prieto, J.L. Martínez, "Magnetic and optical properties of magnetoresistive manganese perovskites thin films with nanometric grains." Presentation at the **Eighth European Conference on Applications of Surface and Interface Analysis (ECASIA'99)**. Seville (Spain) 4-8 October 1999.
33. M. Rodríguez, P. Velasco, E. López, M.C. Sánchez, P. Sánchez, C. Aroca, "Mechanism of induction of large Barkhausen discontinuities in amorphous ribbons." Poster at the **International Conference on Magnetism (ICM'97)**. Cairns (Australia) 27 July-1 August 1997.

## INVITED TALKS

- "Visual Motion Integration" at the **New York State Psychiatric Institute**, December 2004.
- "Powder Magnetoresistance of  $Tl_2Mn_2O_7$  related compounds" at **Columbia University** (Applied Physics Department), 2 December 2004.
- "Visual Motion Integration" at **Princeton University** (Physics Department), 18 July 2004.

## PROFESSIONAL AFFILIATIONS

- 2007 to present: Member of the International Society for Magnetic Resonance in Medicine.
- 2010 to present: Member of the Organization for Human Brain Mapping.

## SCIENTIFIC VISITS

- 2000 & 2001 (7 months total): Trinity College of Dublin, Dublin (Ireland). Supervisor: Prof. J. M. D. Coey.
- October-December 1998: Physics Department of the University of California - San Diego, in La Jolla, CA. Supervisor: Prof. Ivan K. Schuller.
- October 1997: Laboratoire pour l'Utilisation du Rayonnement Electromagnétique (LURE), in Orsay (France).

## ATTENDANCE AT CONFERENCES

- *International Society for Magnetic Resonance in Medicine Meeting* (2007-2008, 2010-2011, 2013-2019).
- *Organization for Human Brain Mapping* (2010-2011, 2013, 2017, 2019, 2020).
- *Vision Sciences Society Meeting* (2003-2004).
- September 2003: *Imaging the Brain: Neurons, Networks and Behavior* - New York, NY.
- February 2002: *New trends on femtosecond laser spectroscopy in Chemistry, Physics and Neurobiology* - International Symposium, Madrid (Spain).
- February 2002: *Second National Meeting of Solid State Physics* - Calella (Spain). *Second Meeting of the Spanish Magnetoresistance Network* - Calella (Spain).
- September 2001: *XXXIX European High Pressure Meeting* - Santander (Spain).
- August 2001: *Joint European Magnetic Symposia* - Grenoble (France).
- July 2000: *Workshop on Electron Spectroscopies* - ASEVA Summer School. Ávila (Spain).
- March 1999: *OXSEN Meeting* - Barcelona (Spain).
- March 1997: *Fourth Workshop of Synchrotron Radiation Users* - Madrid (Spain).

## SOFTWARE

- MRI sequence development: IDEA (Siemens).
- MRI analysis software: FSL, Brain Voyager QX.
- Operating systems: OS X, Windows XP.
- Mathematical programs: Matlab, Maple, Origin.
- Programming in Python, C++ and Visual Basic, with special knowledge in programs of process automatization and image generation (SDL and OpenGL).
- Master of commonly used applications (word processors, spreadsheets, databases, etc.)