

Curriculum Vitae

FERNANDO MORENO-HERRERO

Personal information

Name: Fernando Moreno Herrero
Date and place of birth: March 5, 1976 in Oviedo (Spain)
Nationality: Spanish
Current address: Centro de Nacional de Biotecnología (CNB-CSIC)
Darwin 3, 28049, Cantoblanco, Madrid, Spain
Tel: 0034 91 585 5305
Email: fernando.moreno@cnb.csic.es
Website: www.fernandomorenoherrero.com

Education

Sept 1998 – March 2003: Ph.D in Physics (Cum Laude), Univ. Autónoma de Madrid, Spain
Ph.D. extraordinary prize by Univ. Autónoma de Madrid.
Thesis supervisor: Prof. Dr. Arturo M. Baró Vidal
Topic: Applications of the Atomic Force Microscopy to investigation of biological systems
Sept 1994 – July 1998: Physics degree by Univ. Oviedo, Spain (#2 of promotion)

Employment

Sept 09 - Present Científico Titular CSIC
National Center of Biotechnology
Dec 06 – Sept 09: Ramon y Cajal program contracted.
Institut Catalá de Nanotecnologia, Spain
Sept 05 – Sept 06: Post-doctoral contracted by FOM (Fundamenteel Onderzoek Materie).
Delft Univ. of Technology, The Netherlands
Sept 03 – Sept 05: Post-doctoral Ramón Areces Foundation Fellow.
Delft Univ. of Technology, The Netherlands
Sept 1999 – Sept 2003: Ph.D Comunidad de Madrid fellow.
Univ. Autónoma de Madrid, Spain
Nov 1997 – June 1998: Collaboration fellow, Spanish Ministry of Science.
Univ. Oviedo, Spain

Research

- High-resolution AFM imaging of DNA-protein interactions in air and in buffer
- Single-molecule biophysics on molecular motors using AFM, Magnetic Tweezers, and biochemical techniques
- Mechanical properties of nucleic acids.

5 Selected Publications

P.A. Wiggins, T. van der Heijden, F. Moreno-Herrero, A. Spakowitz, R. Phillips, J. Widom, Cees Dekker and P.C. Nelson
"High flexibility of DNA on short length scales probed by atomic force microscopy"
NATURE Nanotechnology 1, November, 137-141 (2006)

F. Moreno-Herrero, R. Seidel, S. Johnson, A. Fire* and N.H. Dekker *"Structural analysis of hyperperiodic DNA from Caenorhabditis elegans"*
Nucleic Acids Research 34(10) 3057-3066 (2006) *(Medicine Nobel Prize 2006)

F. Moreno-Herrero, M. de Jager, N.H. Dekker, R. Kanaar, C. Wyman and C. Dekker *"Mesoscale conformational changes in the DNA-repair complex Rad50/Mre11/Nbs1 upon DNA binding"*
NATURE 437 (7057), 440-443 (2005)

C. Gómez-Navarro, F. Moreno-Herrero, P.J. de Pablo, J. Colchero, J. Gómez-Herrero and A.M. Baró *"Contactless experiments"*

on individual DNA molecules show no evidence for molecular wire behavior"
Proceedings of the National Academy of Sciences USA, 99 (13), 8484-8487 (2002)

P.J.de Pablo, F.Moreno-Herrero, J.Colchero, J.Gomez-Herrero, P.Herrero, A.M.Baró, P.Ordejón, J.M.Soler and E. Artacho
"Absence of dc-Conductivity in λ -DNA"
Physical Review Letters 85 (23), 4992-4995 (2000)

Awards and Honors

- ERC Starting Grant 2007
- Ramón y Cajal awardee. Number 1 position. Spanish Ministry of Science
- Ph.D Extraordinary Prize, Univ. Autónoma de Madrid
- Ramón Areces Postdoc fellowship, Ramón Areces Foundation
- Ph.D. Cum Laude, Univ. Autónoma de Madrid
- CAM Ph.D. Fellowship, Comunidad de Madrid Government
- Collaboration Fellowship, Spanish Ministry of Science

Other activities and membership

- Journal Referee: Nucleic Acids Research, European Biophysical Journal, FEBS letters, Biophysical Journal, Journal of Microscopy and European Polymer Journal.
- Member of Royal Spanish Physical Society.
- Member of Spanish Biochemistry and Molecular Biology Society.
- Member of the American Biophysical Society.

Some Invited seminars and talks

Ensayos enzimáticos en tiempo real sobre una única molécula de ADN

Prof. C. Gancedo Lab, Instituto de Investigaciones Biomédicas. Madrid, Dec 2000.

Fundamentos de las pinzas ópticas y su aplicación al estudio de reacciones enzimáticas en tiempo real sobre ADN

Prof. J. Ávila Lab. Centro de biología molecular "Severo Ochoa", Madrid, June 2002.

Applications of the AFM to the study of individual biological samples

Prof. Cees Dekker Lab. TU-Delft, Delft, (The Netherlands). February 2003.

Técnicas de microscopía de fuerzas para visualizar muestras biológicas en medio líquido

Instituto de microelectrónica de Madrid. Madrid, April 2003.

Microscopía de fuerzas atómicas: fundamentos y aplicaciones

In Ph.D Biology program, Univ. Autónoma de Madrid. Madrid, June 2003.

AFM real time imaging of the interaction between DNA and the DNA repair complex Rad50/Mre11

International EMBO/FEBS Workshop on AFM applications in biology, Oeiras, Portugal, 2004

Bringing the broken ends together, an AFM study of the human Rad50/Mre11 DNA repair complex

Royal Netherlands Academy of Arts and Sciences (KNAW), Amsterdam, April 2005.

AFM study of the human Mre11 DNA-repair complex

I joint workshop on molecules, nanostructures and scanning probe microscopy, Osaka, Japan, 2005

DNA-protein interactions studied at the molecular level using atomic force microscopy

Institut Català de Nanotecnologia, Univ. Autònoma de Barcelona, 2006

High flexibility of DNA at short length scales probed with the atomic force microscopy

Keynote talk at Trends in Nanotechnology 2007, San Sebastián, 3-7 Septiembre 2007.

Single-molecule Biophysics: Atomic Force Microscopy and Magnetic Tweezers as nanotools to study DNA repair

Workshop "1st Spain-Taiwan Nano-Electronics Workshop", Bellaterra, 6,7 Octubre 2007.

Técnicas de molécula individual para estudiar nanomáquinas reparadoras de ADN "

XXXI Congreso de la Sociedad Española de Bioquímica y Biología molecular, Bilbao, 10-13 Sept. 2008.

Using the Atomic Force Microscope to study DNA break repair

1st Winter workshop on functional SPM in Bio and Chemical Physics, Modena, Italy, 10-12 Dec. 2009.

Contributed talks, Publications and Funded Projects

- 24 Contributed talks in national and international conferences + 4 invited + 1 Keynote.
- 26 ISI Web of Knowledge ranked publications with 3 conference proceedings
- First author in 15, and second in 8
- >746 times cited, H=15. Average JCR impact of publications 5.997.
- Participated in 10 funded Research Projects. 3 as Principal Investigator.