

Cédric LORCÉ

Ph.D. in Physics

Qualification:MCF-2011-29-11229217026

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Theoretical physics with special interests in : particle physics, fundamental interactions, symmetries and symmetry breakdowns, baryon tomography and (multi-)parton distributions, angular momentum decomposition, light-front wavefunctions, k_T -factorization, quarkonium production, higher-spin physics, solitons and instantons.

General information

Born the 11th of May 1982 in Belgium

Nationality : Belgian

Single

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Current professional address

Centre de Physique Théorique

École polytechnique,

Université Paris-Saclay,

F91128 Palaiseau cedex (France)

Personal address

10, Rue Marco Polo, apt. 627

91300 Massy (France)

Professional experience

Sep 2015

-now

Assistant Professor at École polytechnique

Center for Theoretical Physics,

University of Paris-Saclay (France)

Sep 2013

-Aug 2015

Postdoctoral Researcher for the F.R.S.-FNRS (*Belgian National Fund for Scientific Research*)

Group of Fundamental Interactions in Physics and Astrophysics,

University of Liège (Belgium)

Sep 2011

-Aug 2013

Postdoctoral Researcher

Institute of Nuclear Physics and Laboratory of Theoretical Physics,

Paris-Sud University (France)

Sep 2008

-Aug 2011

Postdoctoral Researcher

Institute of Nuclear Physics,

University of Mainz (Germany)

Oct 2004

-Aug 2008

Research Fellow for the F.R.S.-FNRS (*Belgian National Fund for Scientific Research*)

Group of Fundamental Interactions in Physics and Astrophysics,

University of Liège (Belgium)

Education and training

- Dec 2007* **Ph.D. in Physics** at the University of Liège
Thesis: “*Exotic and non-exotic baryon properties on the light cone*”
Advisor: Prof. M. Polyakov
Defended on Dec 21
e-Print: arXiv:1010.1685 [hep-ph]
- Jun 2005* **DEA in Physics** (3rd cycle degree) at the University of Liège with highest honors
Research report: “*Soliton and instanton calculus*”
Advisor: Prof. M. Polyakov
- Jun 2004* **Licencié in Physics** (Master) at the University of Liège with highest honors
Master thesis: “*Symmetry breaking and mass generation*”
Advisor: Dr. J.-R. Cudell
- Jun 2002* **Candidat in Physics** (Bachelor) at the University of Liège with highest honors

Awards and scientific distinctions

- F.R.S.-FNRS Postdoctoral Researcher fellowship, Liège, Belgium, Sep 2013
- McCartor Travel Award, LIGHT CONE 2010 Workshop, Valencia, Spain, Jun 2010
- F.R.S.-FNRS Research Fellow grant, Liège, Belgium, Oct 2004
- Valedictorian, Physics Department Award, Liège, Belgium, Sep 2004

Long stays, publications, conferences and seminars

Long stays

- USA :
 - Stanford Linear Accelerator Center (SLAC), Theoretical Physics Group, Menlo Park, Oct 2014-Jul 2015
 - "USA tour" : 17 Feb-5 Mar 2008
 - * Jefferson Laboratory, Newport News, 1-5 Mar 2008
 - * Penn State University, 104 Davey Lab, State College, 24-29 Feb 2008
 - * University of Maryland, Theoretical Quarks, Hadrons and Nuclei Research Group, College Park, 21-23 Feb 2008
 - * University of Washington, Institute for Nuclear Theory, Seattle, 17-20 Feb 2008
- France :
 - Commissariat à l’Energie Atomique (CEA), Nuclear Physics Unit (SPhN), Saclay, Mar 2014-May 2014
 - Paris-Sud University, Institute of Nuclear Physics (IPNO), Orsay, Sep 2013-Mar 2014
- Italy :
 - University of Pavia, Department of Nuclear and Theoretical Physics, Mar 2011-May 2011
 - University of Pavia, Department of Nuclear and Theoretical Physics, Dec 2009-Jun 2010
- Germany :
 - University of Bochum, Institute of Theoretical Physics II, Sep 2005-Aug 2007

Publications, conferences and seminars

- 31 peer-reviewed papers
- 43 conference papers
- 33 seminars (on 25 topics)
- 58 presentations at conferences and meetings (40 as invited speaker, 6 plenary talks and 2 summary talks)
- 15 other participations to conferences

Teaching and supervising experience

- *Schools*
 - Second International Spring School of the GDR PH-QCD, "Correlations between partons in nucleons"
Paris-Sud University, France, 30 Jun-4 Jul 2014
 - 29th Annual Hampton University Graduate Studies (HUGS 2014) summer school
Jefferson Laboratory, USA, 2-20 Jun 2014
- *Advanced physics*
 - Tutorials on "Relativistic fields"
École polytechnique, University Paris-Saclay, France, 2015-2017
 - Tutorials on "Variational principles and special relativity"
École polytechnique, University Paris-Saclay, France, 2015-2017
 - Co-teaching on "Advanced quantum field theory"
University of Liège, Belgium, 2013-2014
 - Co-teaching on "Advanced quantum mechanics"
University of Liège, Belgium, 2013-2014
 - Lectures on "Orbital Angular Momentum in QCD"
University of Pavia, Italy, 2013
 - Lectures on "Parton Wigner Distributions of the nucleon"
University of Pavia, Italy, 2013
 - Exercises on "Theoretische Physik 3: Quantenmechanik"
University of Mainz, Germany, 2010
 - Exercises on "Theoretische Physik VI: Quantenmechanik II"
University of Mainz, Germany, 2009
 - Lectures on "A short Introduction to Instantons"
University of Mons-Hainaut (PNT group), Belgium, 2008
University of Liège (IFPA group), Belgium, 2008
- *General physics*
 - Physics laboratories for the 1st year of Sciences and Engineering
University of Liège, Belgium, 2003-2004 and 2004-2005
 - Physics training sessions (Analytical Mechanics) for the 1st year of Physics
University of Liège, Belgium, 2003-2004
- *Students*
 - Luca Mantovani (University of Pavia, Italy)
Ph.D. internship on quark energy-momentum tensor in impact-parameter space
École polytechnique, University of Paris-Saclay, France, 2016-2017

- Amit Pritish Bhoonah
Master internship on transversely polarized quark energy-momentum tensor
École polytechnique, University of Paris-Saclay, France, 2015-2016
- Markus Thürmann
Master thesis: “*Study of multiparton interaction within relativistic light-front quark models*”
Paris-Sud University, France, Nov 2012

Other scientific services

- Conferences and workshops
 - Convener for the Conference on the Intersections of Particle and Nuclear Physics (CIPANP2015), Vail, Colorado, USA, 19-24 May 2015
 - Organizer of a workshop on “*Spin and Orbital Angular Momentum of Quarks and Gluons in the Nucleon*” ECT*, Trento, Italy, 25-29 Aug 2014
- Referee for Ph.D. theses
 - Narinder Kumar
Thesis: “*Study of Generalized Parton Distributions using Light-Front Dynamics*”
Dr. B.R. Ambedkar National Institute of Technology, Jalandhar, India, November 2015
 - Alexandre Payez
Thesis: “*Large-scale alignments of quasar polarizations: A detailed study of the spinless-particle scenario*”
University of Liège, Liège, Belgium, May 2013
- Referee in scientific journals
 - Physical Review Letters
 - Physical Review D
 - Physics Letters B
 - Journal of High-Energy Physics
 - Few-Body Systems
 - European Physical Journal A and C
 - Journal of Physics G

Personal skills and competences

Languages

<i>French</i>	Mother Tongue
<i>English</i>	Fluent
<i>German</i>	Good
<i>Italian</i>	Good
<i>Dutch</i>	Basic Knowledge

Computer skills

<i>Operating systems</i>	Linux/Unix, Windows
<i>Programming languages</i>	C, Fortran, Pascal
<i>Calculus languages</i>	Form, Mathematica, Matlab

Seminars

1. *“Angular momentum decomposition in gauge theories”*
 - Physics Division, Argonne National Lab, Argonne, USA, 16 Mar 2015
 - SLAC, Theoretical Physics Group, Menlo Park, USA, 29 Oct 2014
2. *“Quark spin-orbit correlations”*
 - University of Mainz, Germany, 23 Jun 2014
3. *“Phase-space structure of the nucleon”*
 - Old Dominion University, Norfolk, USA, 12 Jun 2014
4. *“2(+3)D structure of the nucleon”*
 - Jefferson Laboratory, Newport News, USA, 10 Jun 2014
5. *“Spin-orbit correlations in the nucleon”*
 - CEA, SPhN, Saclay, France, 14 Apr 2014
6. *“The proton spin structure”*
 - Ecole Polytechnique, LLR, Palaiseau, France, 21 Mar 2014
7. *“The proton internal structure and the quest for orbital angular momentum”*
 - University of Washington, Nuclear Theory Group, Seattle, USA, 21 Jan 2014
8. *“The proton spin decomposition: Some news about the controversy”*
 - Ecole Polytechnique, CPHT, Palaiseau, France, 3 Dec 2013
 - NIKHEF, Amsterdam, The Netherlands, 30 May 2013
9. *“What is an elementary particle ? Shedding some light on the issue”*
 - Imperial College, London, United Kingdom, 22 May 2013
10. *“Proton internal structure and the issue of orbital angular momentum”*
 - CEA, SPhN, Saclay, France, 11 Jan 2013
11. *“Controversies about the definition of the angular momentum decomposition in gauge theories”*
 - University of Mons-Hainaut, Belgium, 20 Dec 2012
12. *“Wigner distributions as an intuitive approach to the parton orbital angular momentum”*
 - University of Pavia, Italy, 5 Dec 2012
13. *“How to define and access the different contributions to the proton spin”*
 - University of Liège, Belgium, 31 Oct 2012
14. *“Quark phase-space distribution and its impact on the proton spin puzzle”*
 - Temple University, Philadelphia, USA, 22 May 2012
15. *“Quark phase-space distribution and orbital angular momentum”*
 - CHEP, Beijing, China, 28 Feb 2012
16. *“Light-front imaging of composite particles”*

- LPSC, Grenoble, France, 7 Dec 2011
17. *“Wigner Distributions in Particle Physics”*
 - Paris-Sud University, IPNO, Orsay, France, 6 Jul 2011
 18. *“Parton Distributions”*
 - University of Liège, Belgium, 23 Nov 2010
 - Ecole Polytechnique, CPHT, Palaiseau, France, 18 Oct 2010
 19. *“Hadron EM Form Factors: A Short Review”*
 - University of Liège, Belgium, 5 Mar 2010
 20. *“What are Elementary Particles?”*
 - University of Mainz, Germany, 4 May 2009
 21. *“Quark Transverse Charge Densities for Spin-3/2 Particles”*
 - University of Liège, Belgium, 8 Jan 2009
 - University of Mainz, Germany, 20 Nov 2008
 22. *“Baryon Light-Cone Wave Functions and Properties in Chiral Quark-Soliton Model”*
 - University of Mainz, Germany, 26 Mar 2008
 - Jefferson Laboratory, Newport News, USA, 3 Mar 2008
 - Penn State University, 104 Davey Lab, State College, USA, 27 Feb 2008
 - University of Maryland, Theoretical Quarks, Hadrons and Nuclei Research Group, College Park, USA, 21 Feb 2008
 - University of Washington, Nuclear Theory Group, Seattle, USA, 18 Feb 2008
 23. *“AdS/CFT Duality”*
 - University of Liège, Belgium, 29 Aug 2007
 24. *“Exotic and Non-Exotic Light Baryons”*
 - University of Liège, Belgium, 10 Feb 2006
 25. *“Solitons and Instantons”*
 - University of Liège, Belgium, 27 Apr 2005

Presentations in conferences and meetings

(> invited, * w/ proceedings, < plenary, o summary)

1. > Kick-off meeting of the GDR QCD, IPNO, Orsay, France, 29-30 Sep 2016
2. >* 4th Workshop on the QCD Structure of the Nucleon (QCD-N'16), Getxo, Spain, 11-15 Jul 2016
3. >* QCD Evolution 2016 Workshop, Nikhef, Amsterdam, The Netherlands, 30 May-3 Jun 2016
4. <> International Conference on the Structure of Baryons (Baryons16), Florida State University Alumni Center, Tallahassee, USA, 16-20 May 2016
5. > IFPA Spring Meeting 2016, University of Liège, Sart-Tilman, Belgium, 8 Apr 2016
6. <>* LIGHT CONE 2015 Workshop, INFN Frascati National Laboratories, Frascati, Italy, 21-25 Sep 2015

7. <>* 6th International conference on Physics Opportunities at Electron-Ion collider (POETIC VI), Ecole Polytechnique, Palaiseau, France, 7-11 Sep 2015
8. >* QCD Evolution 2015 Workshop, Jefferson Lab, Newport News, USA, 26-30 May
9. ○> Twelfth Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2015), Vail, USA, 19-24 May 2015
10. > Workshop on Exclusive Meson Production and Short-Range Hadron Structure, Jefferson Lab, Newport News, USA, 22-24 Jan 2015
11. <>* XXI DAE-BRNS High Energy Physics Symposium 2014, IIT Guwahati, Guwahati, India, 8-12 Dec 2014
12. > International workshop on Frontiers of QCD, IIT Bombay, Bombay, India, 2-5 Dec 2014
13. > Workshop on "Spin and Orbital Angular Momentum of Quarks and Gluons in the Nucleon", ECT*, Trento, Italy, 25-29 Aug 2014
14. >* LIGHT CONE 2014 Workshop, NC State University, Raleigh, North Carolina, USA, 26-30 May 2014
15. >* QCD Evolution 2014 Workshop, Santa Fe, New Mexico, USA, 12-16 May 2014
16. >* XXII. International Workshop on Deep-Inelastic Scattering and Related Subjects(DIS2014) Workshop, University of Warsaw, Warsaw, Poland, 28 Apr-2 May 2014
17. > INT Workshop INT-14-55W 'Studies of 3D Structure of Nucleon', University of Washington, Seattle, USA, 24-28 Feb 2014
18. <> 10th European Research Conference on "Electromagnetic Interactions with Nucleons and Nuclei" (EINN2013), Annabelle Hotel, Paphos, Cyprus, 28 Oct-2 Nov 2013
19. > Fall Meeting of the Division of Nuclear Physics of the American Physical Society (DNP2013), Marriott Hotel and Conference Center, Virginia, Newport News, USA, 23-26 Oct 2013
20. >* 13th International Conference on Meson-Nucleon Physics and the Structure of the Nucleon (MENU 2013), Pontificia Università della Santa Croce, Rome, Italy, 30 Sep-4 Oct 2013
21. > International Workshop on Hadron Structure and Spectroscopy (IWHSS2013), Erlangen Castle, Erlangen, Germany, 22-24 Jul 2013
22. > CLAS12 3rd European Workshop, University of Glasgow, Glasgow, Scotland, UK, 20-22 Jun 2013
23. > Structure of Nucleons and Nuclei, Palace Hotel, Como, Italy, 10-14 Jun 2013
24. >* 3rd QCD Evolution Workshop, JLab, Newport News, Virginia, USA, 6-10 May 2013
25. ○> Physics at A Fixed Target Experiment (AFTER) using the LHC beams, ECT*, Trento, Italy, 3-13 Feb 2013
26. Rencontres de Physique des Particules (RPP2013), LPSC, Grenoble, France, 16-18 Jan 2013
27. >* 3rd Workshop on the QCD Structure of the Nucleon (QCD-N'12), Bilbao, Spain, 22-26 Oct 2012
28. >* (2 talks) DIFFRACTION 2012 International Workshop on Diffraction in High-Energy Physics, Puerto del Carmen, Lanzarote, Canary Islands, Spain, 10-15 Sep 2012
29. >* 2nd QCD Evolution Workshop, JLab, Newport News, Virginia, USA, 14-17 May 2012
30. * QNP 2012 Sixth International Conference on Quark and Nuclear Physics, Ecole Polytechnique, Palaiseau, France, 16-20 Apr 2012
31. > International Workshop on Hadron Structure and Spectroscopy (IWHSS2012), Lisbon, Portugal, 16-18 Apr 2012

32. INT Workshop INT-12-49W 'Orbital Angular Momentum in QCD', University of Washington, Seattle, USA, 6-17 Feb 2012
33. > Fall meeting of the GDR PH-QCD: nucleon and nucleus structure studies with a LHC fixed-target experiment and electron-ion colliders, Paris-Sud University, Orsay, France, 18-21 Oct 2011
34. >* TRANSVERSITY 2011 Third International Workshop on Transverse Polarization Phenomena in Hard Scattering, Veli Losinj, Croatia, 29 Aug-2 Sep 2011
35. >* PHOTON-2011 International Conference, Spa, Belgium, 22-27 May 2011
36. >* 30 years of strong interactions: a three-day meeting in honor of Joseph Cugnon and Hans-Jürgen Pirner, Spa, Belgium, 6-8 Apr 2011
37. > CLAS12 2nd European Workshop, CNRS Délégation Paris Michel-Ange, Paris, France, 7-11 Mar 2011
38. > Quatrième Assemblée Plénière du GdR Nucléon, CEA, Saclay, France, 25-26 Nov 2010
39. * SPIN2010 19th International Spin Physics Symposium, Jülich, Germany, 27 Sep-2 Oct 2010
40. Journées des théoriciens nucléaires, Lyon, France, 19-20 Oct 2010
41. > 27th Students' Workshop on Electromagnetic Interactions, Bosen, Saar, Germany, 29 Aug-3 Sep 2010
42. > TMD2010 - Workshop on Transverse Momentum Distributions, ECT*, Trento, Italy, 21-25 Jun 2010
43. * LIGHT CONE 2010 Workshop, Valencia, Spain, 14-18 Jun 2010
44. * 4th Workshop on ERHMT, JLab, Newport News, Virginia, USA, 18-21 May 2010
45. <> 8th European Research Conference on "Electromagnetic Interactions with Nucleons and Nuclei" (EINN2009), Conference Centre George Eliopoulos, Milos, Greece, 27 Sep-2 Oct 2009
46. > 5th International Pion-Nucleon PWA Workshop, ECT*, Trento, Italy, 1-5 Jun 2009
47. DPG Tagung Conference, Bochum, Germany, 16-20 Mar 2009
48. > Chairman at the Journées Jeunes Chercheurs 2008 (JJC 2008), Maison des Planchettes, Saint-Flour, France, 30 Nov-6 Dec 2008
49. * LIGHT CONE 2008 Workshop, European Physical Society, Mulhouse, France, 7-11 Jul 2008
50. * DIS08 Workshop, University College London, London, United Kingdom, 7-11 Apr 2008
51. >* Joint Meeting HLPW08, University of Liège, IFPA, Spa, Belgium, 6-8 Mar 2008
52. 11th International Baryons Conference (Baryons07), Seoul National University, Seoul, South Korea, 11-15 Jun 2007
53. DPG Tagung Conference, Giessen, Germany, 12-16 Mar 2007
54. * Journées Jeunes Chercheurs 2006 (JJC 2006), La Rochelle, France, 10-16 Dec 2006
55. Hadronth06 workshop, Peñiscola, Spain, 7-9 Sep 2006
56. * Journées Rencontres Jeunes Chercheurs 2005 (JRJC 2005), Centre Paul Langevin, Aussois, France, 4-10 Dec 2005
57. * Journées Jeunes Chercheurs 2004 (JJC 2004), Ile de Berder, Bretagne, France, 28 Nov-3 Dec 2004

Participation to other conferences and meetings

1. GDR QCD 2016, IPNO, Orsay, France, 8-10 Nov 2016
2. First SaporeGravis Day Meeting (I3HP3 project), Orsay, France, 23 Nov 2012
3. QWG 2011 8th International Workshop on Heavy Quarkonium, GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany, 4-7 Oct 2011
4. One-day Meeting: fixed-target projects at CERN, University of Paris-Sud XI, IPNO, Orsay, France, 7 Jul 2011
5. CRC 443 “Many body structure of strongly interacting systems” Conclusive Symposium, University of Mainz, Mainz, Germany, 23-25 Feb 2011
6. 26th Students’ Workshop on Electromagnetic Interactions, Bosen, Saar, Germany, 30 Aug-4 Sep 2009
7. MAMI and Beyond Workshop, Mainz, Germany, 30 Mar-3 Apr 2009
8. 25th Students’ Workshop on Electromagnetic Interactions, Bosen, Saar, Germany, 31 Aug-5 Sep 2008
9. SFB/TR-meeting 16, University of Giessen, Giessen, Germany, 31 May-1 Jun 2007
10. SFB/TR-meeting, Bommerholtz, Germany, 27-28 Nov 2006
11. Workshop on eta photoproduction, University of Bochum, Bochum, Germany, 23-25 Feb 2006
12. SFB/TR-meeting: From Goldstones to Golden Stones, University of Giessen, Giessen, Germany, 23-24 Nov 2005
13. Workshop on Hard Processes, University of Dortmund, Dortmund, Germany, 11-13 Oct 2005
14. Workshop on Exotic Hadrons, ECT*, Trento, Italy, 21-25 Feb 2005
15. Joint Meeting Heidelberg-Liège-Paris-Rostock, Spa, Belgium, 16-18 Dec 2004