



# Daniele Brida

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## Personal Data

Birth date 22 May 1982  
Nationality Italian  
Affiliation Physics and Materials Science Research Unit, University of Luxembourg,  
L-1511 Luxembourg, Luxembourg.

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## Academic Background

Since July 2018, Full Professor of Experimental Condensed Matter Physics at the University of Luxembourg. Also, visiting Group leader at the Physics Department of University of Konstanz (Germany) with a position funded by the prestigious Emmy Noether Program of the Deutsche Forschungsgemeinschaft. Member of Zukunftskolleg, an interdisciplinary center promoting independence for young academics, funded by the Excellence Initiative of the German Federal Government and States. Previously employed as Assistant Professor in the Physics Department of Politecnico di Milano (Italy).

Author of more than 80 scientific papers in renowned international journals of high impact factor (including Nature, Science, Nature Materials, Nature Physics, Nature Communications, PNAS, Laser & Photonics Review and Physical Review Letters) and author or coauthor of more than 200 proceedings presented at international conferences. Several of these contributions were invited. Co-author of a book chapter about ultrafast optical parametric amplifiers and also inventor with two patents granted. Several participations to international symposia and colloquia as invited speaker.

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## Summary of my research activities

*Ultrashort pulse generation:* One of my main activities was the generation of ultrashort optical pulses in a broad spectrum of frequencies. In particular I developed some OPA schemes that are able to exploit extremely broadband phase matching conditions in order to amplify weak supercontinua; in this way I generated pulses approaching the single cycle from the UV to the mid-IR and even THz frequency range.

- Ultrafast dynamics in condensed matter:* The main scope for the ultrashort pulse generation is its use in optical spectroscopy with the possibility to access events occurring on an elementary time scale with unprecedented sensitivity. Also, the tunability of the pulses plays a key role in ultrafast spectroscopy. For this reason my main activity has been the use of ultrashort pulses for the study of elementary processes occurring in matter upon impulsive photoexcitation with unprecedented combination of temporal resolution and spectral coverage. In particular, I studied coherent nuclear wave-packet oscillations in carotenoids and similar molecular species, energy transfer in organic photovoltaic blends, ultrafast isomerisation in Rhodopsin, electron dynamics in metals, superconductors, graphene and other layered materials.
- Nanophotonics and plasmonics:* One additional activity is the study of ultrafast phenomena and plasmonic effects in gold nanoantennas with main focus on the photoluminescence and nonlinear properties of these structures. Recently I also started a new activity funded by European Union on plasmonics in heavily doped semiconductors.
- Ultrafast nanotransport:* A novel research direction promises to combine ultrafast optics to quantum transport at the nanoscale: in this activity we drive the tunneling of single electrons through the gap of a nanocircuit by exploiting the electric field of single cycle light pulses. This approach allows to access electronic currents with PHz bandwidth with extreme lateral constriction.
- Other scientific activities:* I am also involved in other research activities, such as the manipulation of pulse profiles with adaptive techniques or by exploiting optical nonlinearities in periodically poled materials for spectral compression. I contributed to the extension of optical projection tomography in the ultrafast domain with the implementation of time gating. All the results from these activities have been published in international peer-reviewed journals.

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## Professional Activity

Topical Editor of Optics Letter. Member of the Board of Meetings of the Optical Society (OSA). Member of the CLEO Europe sub-committee on Ultrafast Optical Technologies (2015, 2017 and 2019) and of HILAS 2018. Session presider at CLEO:QELS 2011 (Baltimore, MD, USA), CLEO Europe 2011 (Munich, Germany), CLEO 2012 (San Jose, CA, USA), CLEO Europe 2013 and 2015 (Munich, Germany), Ultrafast Phenomena 2014 (Okinawa, Japan) and 2016 (Santa Fe, USA).

Active referee for a number of scientific publications including high profile journals like Nature Photonics, Nature Nanotechnology and Physical Review Letters. Reviewer for the evaluation of grant proposals submitted to the Department of Energy (US), to the Swiss National Science Foundation and other national funding agencies.

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## Bibliometric Data

- H-index 32 (>3500 citations) on ResearcherID - ISI database (Author ID: A-9301-2010)  
39 (>5000 citations) on Google Scholar (Author ID: AUhJBuwAAAAJ)  
Updated on December 06, 2018

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## Experience

### Positions

- 07/2018 - now **Full Professor in Experimental Physics**, *University of Luxembourg*, Luxembourg.  
2017 **Interim Professor (W2)**, *University of Konstanz*, Konstanz, Germany.
- 02/2015 – now **Emmy Noether Group Leader (currently with a visiting status)**, *University of Konstanz*, Konstanz, Germany.  
Emmy Noether Program from DFG.
- 04/2013 – **Zukunftskolleg Fellow**, *University of Konstanz*, Konstanz, Germany.  
06/2018 5-year position granted by the second German Excellence Initiative.
- 09/2012 – **Group Leader**, *Physics Department - University of Konstanz*, Konstanz, Germany.  
03/2013 Research activity on advanced femtosecond light sources and ultrafast dynamics in solid-state nanostructures
- 06/2010 – **Assistant Professor**, *Physics Department - Politecnico di Milano*, Milano, Italy.  
08/2012 3-year Ricercatore TD position funded within a regional project for the study of ultrafast physical processes in various systems.
- 09/2010 – **Visiting researcher**, *University of Konstanz*, Konstanz, Germany.  
08/2011 Research project at the Chair for Ultrafast Phenomena and Photonics (Prof. Alfred Leitenstorfer): generation of THz shock waves and passive phase stabilization of an Er: fiber system.
- 01/2010 – **Research Fellow**, *Physics Department - Politecnico di Milano*, Milano, Italy.  
06/2010 Position granted by an AFOSR contract for the generation of ultrashort pulses by coherent superposition.

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## Teaching Activity

- 2017 **Lecturer**, *Konstanz University*.  
Nano-Optics
- 2015 **Excercise Planning**, *Konstanz University*.  
Semiconductor Physics
- 2014-2015 **Excercise Planning**, *Konstanz University*.  
Physics integrated course III.
- 2014 **Lecturer**, *Konstanz University*.  
Laser Physics and Nonlinear Optics course.
- 2013 **Lecturer**, *Konstanz University*.  
Supervision in topical seminars in the course "Ultrafast Phenomena and Femtosecond Technology" for Physics students.
- 2012–2013 **Teaching Assistant**, *Konstanz University*.  
Supervision in topical seminars in the course "Laser Physics and Nonlinear Optics" for Physics students.
- 2011 **Guest Lecturer**, *Konstanz University*.  
Topical lectures in the course "Photonics, Laser Physics and Nonlinear Optics" for Physics students.
- 2007–2012 **Teaching Assistant**, *Politecnico di Milano*.  
TA activity in basic Physics courses for engineers (Classical Mechanics, Thermodynamics, Electromagnetism). TA in the "Ultrafast Optics" advanced course for graduate students.

- 2008–2012 **Lab. Assistant**, *Politecnico di Milano*.  
Teaching in experimental laboratories for undergraduate students.
- 2008–2012 **Master/ Bachelor Thesis supervisor**, *Physics department - Politecnico di Milano*.  
Laboratory Supervision of students involved in Master/Bachelor thesis research. Co-relator in Master thesis.
- Supervision
- I supervised several graduate students in their thesis projects at Politecnico di Milano. I also supervised 7 graduate student at University of Konstanz. Currently I am directly supervising 6 PhD candidates and co-supervising 4 PhD students. I am also supervising 5 Master students as Group Leader at University of Konstanz.

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## Education

- since December 2013 **Habilitation**, National Italian habilitation to professorship in Experimental Condensed Matter Physics (02/B1 - Fisica sperimentale della Materia) .
- Jan. 2007 – Feb. 2010 **PhD**, *Politecnico di Milano, Milano, Physics*.  
Ph.D. in Physics with distinction from Politecnico di Milano with a dissertation entitled “Probing primary photoinduced processes with broadly tunable few-optical-cycle light pulses”. Advisor: Prof. G. Cerullo (Politecnico di Milano). PhD fellowship from the Istituto Nazionale per la Fisica della Materia (INFM) of the Italian National Research Council (CNR).
- 2004–2006 **Master degree**, *Politecnico di Milano, Milano, Physics engineering*.  
Specialization in Optics, Lasers and Photonics.
- 2001–2004 **Bachelor degree**, *Politecnico di Milano, Milano, Physics engineering*.  
Specialization in Optics and Lasers.

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## Grants and Fellowships

- 2018-2022 FEDER Luxembourg: Lux-Ultra-Fast (785 k€), 40% Cofunding of the start-up. Role: Principal Investigator.
- 2019-2023 Marie Curie ITN project MUSIQ (250 k€). Role: Principal Investigator.
- 2016-2019 SFB 767 Project B08 (510 k€). Role: Principal Investigator.
- 2015-2020 Emmy Noether Programm - DFG (1.65 M€). Role: Principal Investigator.
- 2014-2015 Baden Württemberg Stiftung Eliteprogramm (100 k€). Role: Principal Investigator.
- 2014-2016 FET Open Xtrack project GEMINI (300 k€). Role: Principal Investigator.
- 2013-2017 CAP project (160 k€). Role: Co-PI.
- 2013-2018 Zukunftskolleg fellowship (group leader position and start-up funding, total 380 k€).
- 2013-2017 Marie Curie Career Integration Grant, proj. UltraQuEsT (100 k€). Role: Principal Investigator.
- 2010-2011 CAP Postdoc Grant (40 k€). Role: Principal Investigator.
- 2007-2009 PhD fellowship from CNR-INFM (2007-2009).

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## Awards

- 2015 Fresnel Prize awarded by the European Physical Society.
- 2009 IEEE/LEOS Student Award.

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## Publications

### Journal Articles

- 1 G. Aguirregabiria, D. C. Marinica, M. Ludwig, **D. Brida**, A. Leitenstorfer, J. Aizpurua, A. Borisov, “Dynamics of electron-emission currents in plasmonic gaps induced by strong fields,” *Faraday Discussions* (2018).
- 2 C. Schmidt, J. Bühler, A.-C. Heinrich, J. Allerbeck, R. Podzimski, D. Berghoff, T. Meier, W. G. Schmidt, C. Reichl, W. Wegscheider, **D. Brida**, and A. Leitenstorfer, “Signatures of transient Wannier-Stark localization in bulk gallium arsenide,” *Nature communications* 9 (1), 2890 (2018).
- 3 J. Bühler, J. Allerbeck, G. Fitzky, **D. Brida**, and A. Leitenstorfer, “Terahertz shockwaves generated by a precise subcycle cut of the electric field,” *Optica* 5 (7), 821-824 (2018).
- 4 P. Fimpel, C. Riek, L. Ebner, A. Leitenstorfer, **D. Brida**, and A. Zumbusch, “Boxcar detection for high-frequency modulation in stimulated Raman scattering microscopy,” *Applied Physics Letters* 112 (16), 161101 (2018).
- 5 F. Enders, A. Budweg, P. Zeng, J. Lauth, T. Smith, **D. Brida**, and K. Boldt, “Switchable Dissociation of Excitons bound at Strained CdTe/CdS Interfaces,” *Nanoscale* (2018).
- 6 A. Grupp, A. Budweg, M. P. Fischer, J. Allerbeck, G. Soavi, A. Leitenstorfer, **D. Brida**, “Broadly tunable ultrafast pump-probe system operating at multi-kHz repetition rate,” *Journal of Optics* 20, 0145005 (2018).
- 7 P. Storz, J. Tauch, M. Wunram, A. Leitenstorfer, **D. Brida**, “Parametric Amplification of Phase-Locked Few-Cycle Pulses and Ultraviolet Harmonics Generation in Solids at High Repetition Rate,” *Laser Photonics Reviews* 11, 1700062 (2017).
- 8 A. Grupp, P. Ehrenreich, J. Kalb, A. Budweg, L. Schmidt-Mende, **D. Brida**, “Incoherent Pathways of Charge Separation in Organic and Hybrid Solar Cells,” *J. Phys. Chem. Lett.* 8, 4858-4864 (2017).
- 9 V. Knittel, M. P. Fischer, M. Vennekel, T. Rybka, A. Leitenstorfer, **D. Brida**, “Dispersion of the nonlinear susceptibility in gold nanoantennas,” *Phys. Rev. B* 96, 125428 (2017).
- 10 M. P. Fischer, J. Bühler, G. Fitzky, T. Kurihara, S. Eggert, A. Leitenstorfer, **D. Brida**, “Coherent field transients below 15 THz from phase-matched difference frequency generation in 4H-SiC,” *Opt. Letters* 42, 2687–2690 (2017).
- 11 S. Peli, S. Dal Conte, R. Comin, N. Nembrini, A. Ronchi, P. Abrami, F. Banfi, G. Ferrini, **D. Brida**, S. Lupi, M. Fabrizio, A. Damascelli, M. Capone, G. Cerullo, and C. Giannetti, “Mottness at finite doping and charge-instabilities in cuprates,” *Nature Physics* 13, 806–811 (2017).
- 12 T. Rybka, M. Ludwig, M. Schmalz, V. Knittel, **D. Brida**, and A. Leitenstorfer, “Sub-cycle optical phase control of nanotransport in the single-electron regime,” *Nature Photonics* 10, 667–670 (2016).
- 13 J. Frigerio, A. Ballabio, G. Isella, E. Sakat, P. Biagioni, M. Bollani, E. Napolitani, C. Manganeli, M. Virgilio, A. Grupp, M. P. Fischer, **D. Brida**, K. Gallacher, D. J. Paul, L. Baldassarre, P. Calvani, V. Giliberti, A. Nucara, and M. Ortolani, “Tunability and Losses of Mid-infrared Plasmonics in Heavily Doped Germanium Thin Films,” *Phys. Rev. B* 94, 085202 (2016).

- 14 C. Riek, C. Kocher, P. Zirak, C. Kölbl, P. Fimpel, A. Leitenstorfer, A. Zumbusch, and **D. Brida**, “*Stimulated Raman scattering microscopy by Nyquist modulation of a two-branch ultrafast fiber source*,” *Opt. Lett.* 41(16), 3731-3734 (2016).
- 15 M. P. Fischer, C. Schmidt, E. Sakat, J. Stock, A. Samarelli, J. Frigerio, M. Ortolani, D. J. Paul, G. Isella, A. Leitenstorfer, P. Biagioni, and **D. Brida**, “*Optical Activation of Germanium Plasmonic Antennas in the Mid Infrared*,” *Phys. Rev. Lett.* 117, 047401 (2016).
- 16 E. Sakat, I. Bargigia, M. Celebrano, A. Cattoni, S. Collin, **D. Brida**, M. Finazzi, C. D’Andrea, and P. Biagioni, “*Time-Resolved Photoluminescence in Gold Nanoantennas*,” *ACS Photonics* 3, 1489-1493 (2016).
- 17 J. Fischer, A.-C. Heinrich, S. Maier, J. Jungwirth, **D. Brida**, and A. Leitenstorfer, “*615-fs pulses with 17-mJ energy generated by an Yb:thin-disk amplifier at 3-kHz repetition rate*,” *Opt. Lett.* 41, 246 (2016).
- 18 G. Soavi, A. Grupp, A. Budweg, F. Scotognella, T. Hefner, T. Hertel, G. Lanzani, A. Leitenstorfer, G. Cerullo, and **D. Brida**, “*Below-gap excitation of semiconducting single-wall carbon nanotubes*,” *Nanoscale* 7, 18337 (2015).
- 19 M. Trushin, A. Grupp, G. Soavi, A. Budweg, D. De Fazio, U. Sassi, A. Lombardo, A. C. Ferrari, W. Belzig, A. Leitenstorfer, and **D. Brida**, “*Ultrafast pseudospin dynamics in graphene*,” *Phys. Rev. B* 92, 165429 (2015).
- 20 C. Schmidt, J. Bühler, A-C Heinrich, A. Leitenstorfer, and **D. Brida**, “*Noncollinear parametric amplification in the near-infrared based on type-II phase matching*,” *J. Opt* 17, 094003 (2015).
- 21 B. Mayer, C. Schmidt, A. Grupp, J. Bühler, J. Oelmann, R. E. Marvel, R. F. Haglund, Jr., T. Oka, **D. Brida**, A. Leitenstorfer, and A. Pashkin, “*Tunneling breakdown of a strongly correlated insulating state in VO<sub>2</sub> induced by intense multiterahertz excitation*,” *Phys. Rev. B* 91, 235113 (2015).
- 22 S. K. Rajendran, W. Wang, **D. Brida**, A. De Sio, E. Sommer, R. Vogelgesang, D. Coles, D. G. Lidzey, G. Cerullo, C. Lienau, and T. Virgili, “*Direct evidence of Rabi oscillations and antiresonance in a strongly coupled organic microcavity*,” *Phys. Rev. B* 91, 201305(R) (2015).
- 23 A. J. Musser, M. Maiuri, **D. Brida**, G. Cerullo, R. H. Friend, and J. Clark, “*The Nature of Singlet Exciton Fission in Carotenoid Aggregates*,” *J. Am. Chem. Soc.* 133, 11830-11833 (2015).
- 24 T. Borzda, C. Gadermaier, N. Vujcic, P. Topolovsek, M. Borovsak, T. Mertelj, D. Viola, C. Manzoni, E. A. A. Pogna, **D. Brida**, M. R. Antognazza, F. Scotognella, G. Lanzani, G. Cerullo, and D. Mihailovic, “*Charge photogeneration in few-layer MoS<sub>2</sub>*,” *Adv. Funct. Mat.* 25, 3351-3358 (2015).
- 25 S. Dal Conte, L. Vidmar, D. Golež, M. Mierzejewski, G. Soavi, S. Peli, F. Banfi, G. Ferrini, R. Comin, B. M. Ludbrook, L. Chauviere, N. D. Zhigadlo, H. Eisaki, M. Greven, S. Lupi, A. Damascelli, **D. Brida**, M. Capone, J. Bonča, G. Cerullo, and C. Giannetti, “*Snapshots of the retarded interaction of charge carriers with ultrafast fluctuations in cuprates*,” *Nature Physics* 11, 421-426 (2015).
- 26 M. Wächtler, J. Guthmuller, S. Kupfer, M. Maiuri, **D. Brida**, J. Popp, S. Rau, G. Cerullo and B. Dietzek, “*Ultrafast Intramolecular Relaxation and Wave-packet Motion in a Ruthenium-based Supramolecular Photocatalyst*,” *Chem. Eur. J.* 21, 7668-7674 (2015).
- 27 M. Wunram, P. Storz, **D. Brida**, and A. Leitenstorfer, “*Ultrastable fiber amplifier delivering 145 fs pulses with 6 μJ energy at 10 MHz repetition rate*,” *Opt. Lett.* 40, 823 (2015).

- 28 V. Knittel, M.P. Fischer, T. de Roo, S. Mecking, A. Leitenstorfer, and **D. Brida**, “*Nonlinear Photoluminescence Spectrum of Single Gold Nanostructures*,” ACS Nano 9, 894 (2015).
- 29 S.M. Falke, C.A. Rozzi, **D. Brida**, M. Maiurio, M. Amato, E. Sommer, A. De Sio, A. Rubio, G. Cerullo, E. Molinari, and C. Lienau, “*Coherent ultrafast charge transfer in an organic photovoltaic blend*,” Science 344, 1001-1005 (2014).
- 30 B. Mayer, C. Schmidt, J. Bühler, D.V. Seletskiy, **D. Brida**, A. Pashkin, and A. Leitenstorfer, “*Sub-cycle slicing of phase-locked and intense mid-infrared transients*,” New J. Phys. 16, 063033 (2014).
- 31 J. Réhault, M. Maiuri, C. Manzoni, **D. Brida**, J. Helbing, and G. Cerullo, “*2D IR spectroscopy with phase-locked pulse pairs from a birefringent delay line*,” Opt. Express 22, 9063-9072 (2014).
- 32 **D. Brida**, G. Krauss, A. Sell, and A. Leitenstorfer, “*Ultrabroadband Er:Fiber Lasers*,” Laser Photon. Rev. 8, 409-428 (2014).
- 33 D. Polli, O. Weingart, **D. Brida**, E. Poli, M. Maiuri, K. M. Spillane, A. Bottoni, P. Kukura, R. A. Mathies, G. Cerullo, and M. Garavelli, “*Wavepacket Splitting and Two-pathway Deactivation in the Photoexcited Visual Pigment Isorhodopsin*,” Angew. Chem. Int. Ed. 53, 2504-2507 (2014).
- 34 A. J. Musser, M. Al-Hashimi, M. Maiuri, **D. Brida**, M. Heeney, G. Cerullo, R. H. Friend, and J. Clark, “*Activated Singlet Exciton Fission in a Semiconducting Polymer*,” J. Am. Chem. Soc. 135, 12747-12754 (2013).
- 35 A. Tomadin, **D. Brida**, G. Cerullo, A. C. Ferrari, and M. Polini, “*Nonequilibrium dynamics of photoexcited electrons in graphene: Collinear scattering, Auger processes, and the impact of screening*,” Phys. Rev. B 88, 035430 (2013).
- 36 **D. Brida**, C. Manzoni, A. Tomadin, Y.-J. Kim, A. Lombardo, S. Milana, R. R. Nair, K. S. Novoselov, A. C. Ferrari, G. Cerullo, and M. Polini, “*Ultrafast Collinear Scattering and Carrier Multiplication in Graphene*,” Nature Communications 4, 1987 (2013).
- 37 M. Wächtler, M. Maiuri, **D. Brida**, J. Popp, S. Rau, G. Cerullo, and B. Dietzek, “*Utilizing ancillary ligands to optimize the photophysical properties of 4H-imidazole ruthenium dyes*,” ChemPhysChem 14, 2973-2983 (2013).
- 38 G. Soavi, F. Scotognella, **D. Brida**, T. Hefner, F. Späth, M. R. Antognazza, T. Hertel, G. Lanzani, and G. Cerullo, “*Ultrafast Charge Photogeneration in Semiconducting Carbon Nanotubes*,” Phys. Chem. Chem. Phys. 15, 9384-9391 (2013).
- 39 D. Fazzi, F. Scotognella, A. Milani, **D. Brida**, C. Manzoni, E. Cinquanta, M. Devetta, L. Ravagnan, P. Milani, F. Cataldo, L. Lüer, R. Wannemacher, J. Cabanillas-Gonzalez, M. Negro, S. Stagira, and C. Vozzi, “*Ultrafast spectroscopy of linear carbon chains: the case of dinaphthylpolyyne*,” Phys. Chem. Chem. Phys. 15, 9384-9391 (2013).
- 40 C. A. Rozzi, S. M. Falke, N. Spallanzani, A. Rubio, E. Molinari, **D. Brida**, M. Maiuri, G. Cerullo, H. Schramm, J. Christoffers, and C. Lienau, “*Quantum coherence controls the charge separation in a prototypical artificial light-harvesting system*,” Nature Communications 4, 1602 (2013).
- 41 G. Grancini, M. Maiuri, D. Fazzi, A. Petrozza, H.-J. Egelhaaf, **D. Brida**, G. Cerullo, and G. Lanzani, “*Hot exciton dissociation in polymer solar cells*,” Nature Materials 12, 29 (2013).

- 42 A. Pashkin, F. Junginger, B. Mayer, C. Schmidt, O. Schubert, **D. Brida**, R. Huber, A. and Leitenstorfer, "Quantum Physics with Ultrabroadband and Intense Terahertz Pulses," *IEEE Journal of Selected Topics in Quantum Electronics*, IEEE Journal of Selected Topics in Quantum Electronics 19, 8401608 (2013).
- 43 G. Della Valle, M. Conforti, S. Longhi, G. Cerullo, and **D. Brida**, "Real-time optical mapping of the dynamics of non-thermal electrons in thin gold films," *Phys Rev. B* 86, 155139 (2012).
- 44 **D. Brida**, C. Manzoni, and G. Cerullo, "Phase-locked pulses for two-dimensional spectroscopy by a birefringent delay line," *Opt. Lett.* 37, 3027-3029 (2012).
- 45 P. Biagioni, **D. Brida**, J.-S. Huang, J. Kern, L. Duò, B. Hecht, M. Finazzi, and G. Cerullo, "Dynamics of Four-Photon Photoluminescence in Gold Nanoantennas," *Nano Lett.* 12, 2941-2947 (2012).
- 46 A. R. Bizzarri, **D. Brida**, S. Santini, G. Cerullo, and S. Cannistraro, "Ultrafast Pump-Probe Study of the Excited-State Charge-Transfer Dynamics in Blue Copper Rusticyanin," *J. Phys. Chem. B* 116, 4192-4198 (2012).
- 47 S. Kumkar, G. Krauss, M. Wunram, D. Fehrenbacher, U. Demirbas, **D. Brida**, and A. Leitenstorfer, "Femtosecond coherent seeding of a broadband Tm: fiber amplifier by an Er: fiber system," *Opt. Lett.* 37, 554-556 (2012).
- 48 L. Lüer, V. Moulisová, S. Henry, D. Polli, T. H. P. Brotsudarmo, S. Hoseinkhani, **D. Brida**, G. Lanzani, G. Cerullo, and R. J. Cogdell, "Tracking energy transfer between light harvesting complex 2 and 1 in photosynthetic membranes grown under high and low illumination," *PNAS* 109, 1473-1478 (2012).
- 49 M. Maiuri, D. Polli, **D. Brida**, L. Lüer, A. M. LaFountain, M. Fuciman, R. J. Cogdell, H. A. Frank, and G. Cerullo, "Solvent-dependent activation of intermediate excited states in the energy relaxation pathways of spheroidene," *Phys. Chem. Chem. Phys.* 14, 6312-6319 (2012).
- 50 D. Fazzi, G. Grancini, M. Maiuri, **D. Brida**, G. Cerullo, and G. Lanzani, "Ultrafast internal conversion in a low band gap polymer for photovoltaics: experimental and theoretical study," *Phys. Chem. Chem. Phys.* 14, 6367-6374 (2012).
- 51 D. Wegkamp, **D. Brida**, S. Bonora, G. Cerullo, J. Stähler, M. Wolf, and S. Wall, "Phase retrieval and compression of low-power white-light pulses," *Appl. Phys. Lett* 99, 101101 (2011).
- 52 **D. Brida**, C. Manzoni, G. Cirimi, D. Polli, and G. Cerullo, "Tracking ultrafast energy flow in molecules using broadly tunable few-optical-cycle pulses," *IEEE Journal of Selected Topics in Quantum Electronics* 18, 329-339 (2012).
- 53 M. W. B. Wilson, A. Rao, J. Clark, R. S. S. Kumar, **D. Brida**, G. Cerullo, and R. H. Friend, "Ultrafast Dynamics of Exciton Fission in Polycrystalline Pentacene," *J. Am. Chem. Soc.* 133, 11830-11833 (2011).
- 54 T. Virgili, D. Coles, A. M. Adawi, C. Clark, P. Michetti, S. K. Rajendran, **D. Brida**, D. Polli, G. Cerullo, and D. G. Lidzey, "Ultrafast polariton relaxation dynamics in an organic semiconductor microcavity," *Phys. Rev. B* 83, 245309 (2011).
- 55 S. Wall, **D. Brida**, S. R. Clark, H. P. Ehrke, D. Jaksch, A. Ardavan, S. Bonora, H. Uemura, Y. Takahashi, T. Hasegawa, H. Okamoto, G. Cerullo, and A. Cavalleri, "Quantum interference between charge excitation paths in a solid-state Mott insulator," *Nature Physics* 7, 114-118 (2011).
- 56 G. Krauss, D. Fehrenbacher, **D. Brida**, C. Riek, A. Sell, R. Huber, and A. Leitenstorfer, "All-passive phase locking of a compact Er: fiber laser system," *Opt. Lett.* 36, 540-542 (2011).



- 57 E. Pontecorvo, S. M. Kapetanaki, M. Badioli, **D. Brida**, M. Marangoni, G. Cerullo, and T. Scopigno, "Femtosecond stimulated Raman spectrometer in the 320-520 nm range," *Optics Express* 19, 1107-1112 (2011).
- 58 C. Gadermaier, A. S. Alexandrov, V. V. Kabanov, P. Kusar, T. Mertelj, X. Yao, C. Manzoni, **D. Brida**, G. Cerullo, and D. Mihailovic, "Electron-Phonon Coupling in High-Temperature Cuprate Superconductors Determined from Electron Relaxation Rates," *Phys. Rev. Lett.* 105, 257001 (2010).
- 59 D. Polli, **D. Brida**, S. Mukamel, G. Lanzani, and G. Cerullo, "Effective temporal resolution in pump-probe spectroscopy with strongly chirped pulses," *Phys. Rev. A* 82, 053809 (2010).
- 60 S. Bonora, **D. Brida**, P. Villoresi, and G. Cerullo, "Ultrabroadband pulse shaping with a push-pull deformable mirror," *Optics Express* 18, 23147-23152 (2010).
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#### Patents

- 1 C. Manzoni, **D. Brida**, and G. Cerullo, "Phase-locked delay device including an optical wedge pair," US Patent application No. 13/490,862 deposited on 07.06.2012. European Patent application No. 13168800.4 deposited on 22.05.2013.

#### Book Chapters

- 1 G. Cerullo, and **D. Brida**, "Ultra-Broadband Optical Parametric Amplifiers," in *SUSSP 66: Ultrafast Nonlinear Optics* (Eds. R. Thomson, C. Leburn and D. Reid), Springer (2013), ISBN 978-3-319-00016-9.

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## Conference contributions

More than 100 contributions at international conferences such as CLEO, CLEO Europe, Ultrafast Phenomena, Ultrafast Optics (the full list is not reported here). Several of these are regularly published as proceedings by leading scientific publishers like Springer, Wiley and SPIE.

### Invited talks at international conferences

- D. Brida, Europhoton 2018, Barcellona, Spain, 2018.
- D. Brida, Ultrafast Phenomena, Hamburg, Germany, 2018.
- D. Brida, URSI AT-RASC, Gran Canaria, Spain, 2018.
- D. Brida, German-Chinese Young Scientist Symposium on Structures and Dynamics at Surfaces, Göttingen, Germany, 2017.
- D. Brida, Correlation Optics 2017, Chernivts, Ukraine, 2017.
- D. Brida *et al.*, META'17, Incheon, South Korea, 2017.
- D. Brida *et al.*, Trends in Nanoscience 2017, Kloster Irsee, Germany, 2017.
- D. Brida, Workshop on Bright THz Source and Nonlinear THz Field-Matter Interaction, Rochester, USA, 2016.
- D. Brida, DPG Spring Meeting, Regensburg, Germany, 2016.
- D. Brida, Topical Meeting on Nonlinear Plasmonics, Rome, Italy, 2016.
- D. Brida, META'16, Malaga, Spain, 2016.
- D. Brida, Laser Optics 2016, St. Petersburg, Russia, 2016.
- D. Brida, Sino-German Symposium on Attosecond Photonics, Shanghai, China, 2015.
- D. Brida, IS-PALD2014, Taiwan, 2014.
- D. Brida, FISMAT 2013, Milano, Italy, 2013.
- D. Brida *et al.*, NLO 2013, Hawaii, USA, 2013.
- D. Brida *et al.*, ICMAT 2013, Singapore, 2013.
- D. Brida *et al.*, Graphene Nanophotonics 2013, Benasque, Spain, 2013.
- D. Brida *et al.*, ASSP 2012, San Diego, USA, 2012.
- D. Brida *et al.*, Ultrafast Optics 2011, Monterey, CA, USA, 2011.
- D. Brida *et al.*, URSI-GASS 2011, Istanbul, Turkey, 2011.
- D. Brida *et al.*, LPHYS'11, Sarajevo, Bosnia and Herzegovina, 2011
- D. Brida *et al.*, ASSP 2011, Istanbul, Turkey, 2011.
- D. Brida *et al.*, CLEO Europe, Munich, Germany 2009.

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## Invited Lectures and Colloquia

- 04-10-2018 Max Planck Institute of Quantum Optics, *IMPRS-APS Talk: Sub-Optical-Cycle Control of Light and Matter*, Munich, Germany
- 27/31-08-2018 ELISS 2018, *Summer School lectures on parametric amplification and plasmonics*, Szeged, Hungary

- 11-04-2018 Max Planck Institute MPSD, *Sub-optical-cycle control of light and matter*, Hamburg, Germany
- 17-01-2018 Max Born Institute, *Sub-optical-cycle control of light and matter*, Berlin, Germany
- 17-02-2017 IHP Microelectronics, *Ultrafast Control and Nonlinear Response of Ge Nanoantennas*, Frankfurt (Oder), Germany
- 25-01-2017 University of Luxembourg, *Ultrafast control of electronic properties at the nanoscale*, Luxembourg
- 13-12-2016 Tel-Aviv University, *Ultrafast control of electrons at the nanoscale*, Tel Aviv, Israel
- 16/17-02-2016 Lecture at the Winter College on Optics: *Er: fiber femtosecond lasers*, Trieste, Italy
- 28-10-2015 Max Planck Institute for Solid State Research, *Ultrafast quantum tunneling in nanojunctions* (Host: Dr. M. Ternes, Prof. K. Kern)
- 17-11-2014 Fritz Haber Institute - Berlin: *Ultrafast electron dynamics in low dimensional systems* (Host: Dr. J. Stähler, Prof. M. Wolf)
- 22-02-2013 Cambridge University: *Ultrafast dynamics in Graphene* (Host: Prof A. C. Ferrari)
- 24-11-2012 IIT-Milan: *2-Dimensional THz spectroscopy* (Host: Prof. G. Lanzani)
- 9-10-2010 WNCO 2010 Tutorial: *Ultrafast spectroscopies*.
- 27/29-04-2010 Cambridge University: *Tutorial Lectures on ultrafast OPAs*. (Host: Prof. R. Friend)
- 4-12-2009 Hamburg Desy-CFEL: *Few-cycle optical pulse generation and application to time resolved spectroscopy*. (Host: Prof. A. Cavalleri)
- 22-10-2009 Konstanz University: *Few-cycle optical pulse generation, pulse shaping and application to time resolved spectroscopy of gold and graphite*. (Host: Prof. A. Leitenstorfer)
- 15-5-2009 Quantronix: *Ultrafast infrared OPA*. (Host: Dr. P. Tzankov)