

Curriculum Vitae Maria Antonietta Loi

Name: Prof.dr. Maria Antonietta Loi
Position: Professor of Applied Physics at the University of Groningen
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Date of birth: May 4, 1973 at Quartu Sant' Elena (Cagliari), Italy
Citizenship: Italian

Current position:

Full professor and Chair of the Photophysics and OptoElectronics research group of the Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

Employments:

since 2014 Full professor at the Zernike Institute for Advanced Materials of the University of Groningen, The Netherlands
since 2011 Chair of the Photophysics and OptoElectronics research group of the Zernike Institute for Advanced Materials, University of Groningen, The Netherlands
2010-2014 Associate professor (tenure) at the Zernike Institute for Advanced Materials of the University of Groningen, The Netherlands
2006-2010 Assistant Professor-tenure track (Rosalind Franklin Fellow) at the University of Groningen, The Netherlands
2003-2006 Researcher at the "Istituto per lo Studio di Materiali Nanostrutturati" - Consiglio Nazionale delle Ricerche, Bologna, Italy
2002-2003 Post Doctoral position at the "Istituto per lo Studio di Materiali Nanostrutturati" Consiglio Nazionale delle Ricerche, Bologna, Italy
2001-2002 Post Doctoral position (in the framework of EUROMAP project of the European Community) at the Linz Institute for Organic Solar Cells (LIOS), Physical Chemistry, Johannes Kepler University Linz, Austria

Education:

1997-2000 Ph.D. in Physics, at the Università di Cagliari, Cagliari, Italy. Title of the thesis: *Photoexcitations and Interchain Interactions in Conjugated Oligomers and Polymers*. Under the supervision: Dr. G. Bongiovanni and Dr. A. Mura
1997 Degree in Physics, at the Università di Cagliari, Cagliari, Italy, with the maximum mark and *cum laude*. Title of the thesis: *Proprietà elettroniche di copolimeri coniugati a gap modulabile*, under the supervision of Dr. Giovanni Bongiovanni e Dr. Andrea Mura

Institutional Responsibilities (National Level):

Since 2020	Member of the Dutch Physics council
2020	Member of the Stairway to Impact Award NWO committee
Since 2019	Member of the CogniGron Board.
2019	Chair of the committee for the evaluation of Public-Private-Partnership proposals for the Science division of NWO
2017-2020	Chair of the Board of the Zernike Institute for Advanced Materials, University of Groningen
2017	Member of the NWO Physics VENI committee
2015-2017	Head of the Science Department of the University College, University of Groningen
since 2016	Chair of the Physics programme committee, University of Groningen
2014-2017	Member of the Board of the Zernike Institute for Advanced Materials, University of Groningen
2014	Member of the FOM committee on Materials writing the "Dutch Materials Challenges"
2013-2018	Member of the subcommittee Phenomenological Physics (FeF) of FOM
2013-2017	Member of the curriculum core team of the University College Groningen
2013-2017	Member Board of Education of the University College Groningen
2013	Member of the Faculty of Science Rosalind Franklin selection Committee evaluating candidates for four assistant professor positions
2013	Member of the selection committee for 1 full professor and 1 assistant professor in devices of complex materials
2013	Member STW-Philips Partnership 'Advanced Sustainable Lighting Solutions' program committee
2013	Member of the VIDI committee sub-division Physics (NWO)
2012	Member of selection committee for full professor position in theoretical chemistry
since 2011	Organizer of the Ameland Summer School for the Zernike Institute for Advanced Materials
2011-2016.1	Member of the Program committee for Physics and Applied Physics
2010-2014.1	Member of the Colloquium committee Physics
Various	Member of several search committees for faculty positions within the Faculty of Science and Engineering in the disciplines physics, chemistry and mathematics.
Various	Member of the reading and PhD examination committees of Groningen University (>30), other Dutch Universities (>20) and universities abroad (>10).

Commissions of Trust (International):

- Reviewer for international funding agencies among which: European Research Council (ERC-Starting Grant), DFG (Germany), Volkswagen Stiftung (Germany), SNF (Switzerland), the Singapore granting Agency, NSF, Hong Kong Granting agency.
- Reviewer in tenure track procedures at the University of California (US), Florida University (US), Nanyang Technological University (Singapore), University of Erlangen-Nuremberg (Germany), Okinawa Institute for Science and Technology (Japan), Politecnico di Milano (Italy), Uppsala University (Sweden), DIFFER Institute (The Netherlands).
- Member of the search committee (3 members) for the Editor in Chief of Applied Physics Letters. Chair of the search committee for the editor in chief of APL energy.

Membership of editorial boards:

since 2021	Member of the international advisory board of Small Structures, Wiley
since 2021	Member of the international advisory board of ACS Materials Letters
since 2020	Member of the international advisory board Materials Horizons, RSC
since 2020	Member of the International Advisory Board of Cell Reports Physical Science
since 2020	Member of the International Advisory Board of Advanced Materials, Wiley
since 2020	Member of the International Advisory Board of ACS Applied Materials and Interfaces
since 2020	Associated Editor of Organic Electronics, Elsevier
since 2019	Deputy Editor of Applied Physics Letters, AIP publishing
since 2019	Member of the International Advisory Board of Journal Material Chemistry C, RSC
since 2018	Member of the International Advisory Board of Advanced Functional Materials, Wiley
since 2016	Member of the International Advisory Board of Advanced Materials Interfaces, Wiley
since 2014	Associate Editor of Applied Physics Letters, AIP publishing
2014 -2019	Member of the international Advisory board of Advanced Electronic Materials, Wiley
since 2013	Member of the Editorial Board of "Frontiers in Solar Energy"
since 2013	Member of the Editorial Advisory Board of Organic Photonics and Photovoltaics, De Gruyter
2014	Editor of themed issue on "Charge Generation Mechanism in Organic Solar Cells" published by Physical Chemistry Chemical Physics
2013	Editor of topical issue on "Excitonic Processes in Condensed Matter, Nanostructured and Molecular Materials" published by European Physical Journal B
2012	Editor of topical issue "From Photophysics to Optoelectronics of Zero- and One-Dimensional Nanomaterials" published by European Physical Journal B
2010	Editor of the Topical issue on Carbon-based Nanostructures published by European Physical Journal B
2009-2014	Editor of Research Letters in Material Science, Hindawi Publishing Corporation

Awards and Honors:

2022	Life-long member of the Dutch Academy of Science (KNAW)
2020	Fellow of the American Physical Society, Materials physics division
2018	Physica Prize, Stichting Physica, The Netherlands
2016	Visiting scientist University of Cagliari (1 month), Italy
2012	Visiting Professor University of Cagliari (3 months), Italy
2011	Minerva Prize, for the best physics publication written by a woman in The Netherlands
2003	Prize young researcher "III millennium" Lions club Bologna, San Lazzaro, Italy
2000	Best experiments at the Fourth International Topical Conference on Optical Probes of Conjugated Polymers and Photonic Crystals, February 2000 Salt Lake City, Utah, USA

Conference organization (not complete):

2020	Co-Chair of the international "NIPHO - Perovskite solar cells, Photonics and OptoElectronics" February 2020, Sevilla, Spain.
2019	Co-Chair of the international conference "Next generation III: PV materials", Groningen, The Netherlands, July 2019
2019	Co-Chair, MRS-Spring Meeting Symposium "Perovskite-Based Light-Emission and Frontier Phenomena—Single Crystals, Thin Films and Nanocrystals" Phoenix, Arizona, April 2019
2017	Co-Chair of the international conference "Next generation III: PV materials", Groningen, The Netherlands, July 2017
2017	Chair of the "Hybrid Perovskite workshop" (national meeting), Groningen, The Netherlands, July 2017

- 2016** International Advisory Board (IAB) for the International Conference on Science and Technology of Synthetic Metals, ICSM2016, Guangzhou, China, June 26 to July 1 2016
- 2016** Co-Chair, MRS-Spring Meeting Symposium "Perovskite PV and Electronic Devices" Phoenix, Arizona, March 2016
- 2015** Co-Chair, "The processing-structure-property nexus of organic semiconductors" (Symposium S) at the e-MRS, Lille France, May 2015
- 2015** Member of the scientific committee "Next Generation Organic Photovoltaics", Groningen, The Netherlands, June 28 to July 1 2015
- 2014** Co-Chair Bilateral Energy conference (e-MRS & MRS) "Organic/polymer and hybrid photovoltaics" (Symposium AA), Lille France, May 2014
- 2013** Co-Chair MRS-Spring Meeting Symposium, "Hybrid and Organic Solar cells" (Symposium B), San Francisco USA, April 2013
- 2012** Co-Chair of the EXCON 2012 10th International Conference on Excitonic Processes in Condensed Matter, Nanostructured and Molecular Materials, 1st July 2012, Groningen, The Netherlands
- 2011** Organizer of the PhD Summer School "Materials for Energy", May 2011, Ameland, The Netherlands
- 2011** Chair of the symposium "From photophysics to optoelectronics of zero- and one-dimensional nanomaterials" at the E-MRS Spring Meeting, Nice, France, May 2011
- 2009** Chair of the symposium "Photophysics of Organic and Hybrid Materials" at the EUROMAT 2009 conference, Glasgow, UK, September 2009
- 2009** Co-chair of the symposium "Science and technology of sp² carbon allotropes" at the E-MRS Spring Meeting, Strasbourg, France, June 2009
- 2008** Chair and Organizer Naphod Summer School "Carbon Nanotubes and related Objects", Alghero, Italy, September 2008
- 2008** Member of the scientific committee of the symposium "Interface controlled organic thin films" E-MRS Spring Meeting, Strasbourg, France, May 2008

Professionalization and schools:

- 2017** GTP Management Assessment on leadership skills
- 2011** Basiskwalificatie Onderwijs (BKO) – University Teaching Qualification
- 2007** Academic leadership Course: University of Groningen, Groningen, The Netherlands

Grants and Financial support:

- 2022** ERC Advanced Grant – "Design and Engineering of Optoelectronic Metamaterials (DEOM)" – 2.5 Meuro
- 2022** HORIZON-CL5-2021-D3-03, Stable high-performance Perovskite Photovoltaics – "Ultra-stable, highly-efficient, low-cost perovskite photovoltaics with minimised environmental impact" (DIAMOND) – 3 year project for a total of 600 Keuro.
- 2020** NWO Materials Challenges - "MetaMaterials for OptoElectronics (MeMOE)"
- 2020** NWO Take-off phase 1 - "Direct conversion X-ray detectors based on quantum dots".
- 2020** Solar-Era Net 2019: "Industrial roll-to-roll (R2R) printing of highly efficient non-fullerene acceptor (NFA)-based organic photovoltaics (OPV)".
- 2018** NWO Materials for Sustainability grant on "Hot-carriers extraction in tin-based perovskite solar cells to exceed the Shockley-Queisser limit". 3 years project for a total of 317 kEuro
- 2014** Ubbo Emmius 2 Years PhD position (granted by the University of Groningen). The other 2 years will be in collaboration with Erlangen University, Germany (Prof. Brabec)
- 2012** 4 years project on polymer wrapped SWNTs. 1PhD +55KEuro investments for a total of about 350 kEuro, similar amount was granted to the German partner (Granted by STW-DFG)

- 2012** NWO bezoekersbeurs (Visiting Professor) to pay 4 months of salary (total 7500 Euro) to Prof. Mura
- 2012** Alumni University of Groningen Section Den Haag, 1 PhD position for 4 years
- 2012** Ubbo Emmius 2 Years PhD position (granted by the University of Groningen). The other 2 years will be in collaboration with The University of Tokyo (Prof. Takeya)
- 2012** ERC Starting Grant "Hybrid Solution Processable Optoelectronic Devices" (HySPOD) 5 Years Project for a total of 1.5 MEuro
- 2011** FOM Focus Group (10 Years project) on organic solar cells. Total 5.5 MEuro. For Prof. Loi 3 PhD positions (4 Years) +150k euro investments (Granted by FOM)
- 2011** Ubbo Emmius PhD position 4 years (granted by the University of Groningen)
- 2010** 4 Years PhD position (200 kEuro +30 kEuro equipment) project "Towards bio-solar cells" (granted by FOM)
- 2009** 4 Years PhD position (200 kEuro) project Bio-related Materials (granted by FOM-DPI)
- 2008** Investment for equipment (50 kEuro) (granted by the Zernike Institute for Advanced Materials)
- 2008** 2 Years Post Doctoral position and investments (total 200 kEuro), intra-institute project (granted by the Zernike Institute for Advanced Materials)
- 2007** 1 PhD position and investment (250 kEuro) project *Nano-Hybrids for Photonic Devices (NaPhoD)* in the framework of the NanoSci-Era (ERA-net scheme of the European Union)
Loi was project leader of this project, which put together 4 European groups.
- 2006** 1 PhD position (granted by the University of Groningen)

Personal fellowships awarded to PhD students or Postdocs of the Loi group:

- 2019** Dr. Simon Kahmann, DFG fellowship for 2 years
- 2014** Dr. Shuyan Shao, Marie Curie Post-Doctoral grant for 2 years
- 2014** Sampson Adjokatse NWO Graduate School fellowship

PhD supervision:

Prof. Loi has supervised or co-supervised 21 successful PhD students until March 2019:

- *Enrico Da Como* - "Morphology correlated photophysics in organic semiconductor thin films" (University of Bologna, 2006) (Co-supervisors: A. Brillante, M. Muccini and M. A. Loi)
- *Dorota Jarzab* - "Physics of organic-organic interfaces" (2010) (supervisor: M. A. Loi)
- *Krisztina Szendrei* - "Charge extraction from colloidal inorganic nanocrystals" (2011) (supervisor: M. A. Loi)
- *Jia Gao* - "Physics of one-dimensional hybrids based on carbon nanotubes" (2011) (supervisor: M. A. Loi)
- *Oleksandr (Alex) Mikhnenko* - "Dynamics of Singlet and Triplet Excitons in Organic Semiconductors" (2012) (supervisors: M. A. Loi and P. W. M. Blom)
- *Marianna Manca* - "Unraveling structure and dynamics by confocal microscopy: From starch to organic semiconductors" (2015) (supervisor: M. A. Loi)
- *Widianta Gomulya* - "Selecting Semiconducting Single-Walled Carbon Nanotubes by Polymer Wrapping: Mechanism and Performances" (2015) (Supervisor: M. A. Loi)
- *Niels Van der Kaap* - "Simulation of charge transport in organic semiconductors." (2016) (first Supervisor M. A. Loi – co-Supervisor L. J. A. Koster)
- *Lai-Hung Lai* – "Organic-inorganic hybrid nanostructured materials for photovoltaics and solar fuels." (2016) (Supervisor: M. A. Loi)
- *Davide Bartesaghi* – "Device physics of polymer:fullerene bulk heterojunction solar cells." (2016)(first Supervisor M. A. Loi – co-supervisor L. J. A. Koster)
- *Speirs, Mark* – "Device physics of colloidal quantum dot solar cells." (2017) (first Supervisor M. A. Loi – co-supervisor L. J. A. Koster)

- *Vladimir Derenskyi* – “Polymer-wrapped carbon nanotubes for high performance field effect transistors.” (2017) (first Supervisor M. A. Loi)
- *Mohamad Nugraha* - “Charge transport and trap states in lead sulfide quantum dot field-effect transistors.” (2017) (first Supervisor M. A. Loi)
- *Jorge Salazar-Rios* - “The power of polymer wrapping: Selection of semiconducting carbon nanotubes, interaction mechanism, and optoelectronic devices.” (2018) (first Supervisor M. A. Loi)
- *Solmaz Torabi* – “Organic Semiconductors for Next Generation Organic Photovoltaics.” (2018) (first Supervisor L. J. A. Koster, 2nd Supervisor M.A. Loi)
- *Machteld E. Kamminga* – “Properties of organic-inorganic hybrids: Chemistry, connectivity and confinement.” (2018) (first Supervisor T.T.M. Palstra, 2nd Supervisor M.A. Loi)
- *Daniel Balazs* - “Colloidal quantum dot solids: Nanoscale control of the electronic properties.” (2018) (first Supervisor M. A. Loi) – CUM LAUDE
- *Simon Kahmann* – “Photophysics of nanomaterials for opto-electronic applications.” (2018)(first Supervisor M. A. Loi, 2nd Supervisor C. J. Brabec)
- *Artem Shulga* – “Colloidal quantum dot field-effect transistors: From electronic circuits to light emission and detection.” (2019)(first Supervisor M. A. Loi)
- *Sampson Adjokatse* – “Organic-inorganic Hybrid perovskite solar cells” - (2019) (first Supervisor M. A. Loi)
- *Mustapha Abdu-Aguye* – “Photophysics of Materials for PV applications” – (2020) (first Supervisor M. A. Loi)
- *Bederak Dimitry*- “PbS colloidal quantum dots for near infrared optoelectronics” – (2021) (first Supervisor M. A. Loi)
- *Martha Rivera Medina*: - “Fabrication and characterization of electroluminescent devices based on metal chalcogenides and halide perovskites” - (2021) (first Supervisor M. A. Loi)
- *Wytse Talsma*: - “Low dimensional solution-processable electronics: from field-effect transistors to artificial synapse” (2021) (first Supervisor M. A. Loi)
- *Bart Groeneveld* – “Metal Halide perovskites: composition, physical properties and Applications” (2021) (first Supervisor M. A. Loi)
- *Herman Duim* - “Metal Halide perovskites: From microstructure to optical properties” (2022) (first Supervisor M. A. Loi)

Current PhD students supervised by Prof. Loi:

1. *Natasha Sukharevska* – “Colloidal Quantum Dots solar cells” Expected 2022
2. *Eelco Tekelenburg*: - “Understanding Hot carrier relaxation in metal Halide perovskites” – Expected 2023
3. *Karolina Tran*: - “Carbon nanotube-based neuromorphic electronics” – Expected 2023
4. *Riccardo Pau*: - “Sn based perovskites for solar cells” – Expected 2023
5. *Matteo Pitaro*: - “Metal Halide perovskite solar cells”- Expected 2024
6. *David Garcia-Romer*: - “Non-Fullerene organic solar cells” – Expected 2024
7. *Jiale Chen*: - “Metal Halide light emitting Diodes” – Expected 2024
8. *Jacopo Pinna*: “CQDs superlattices”- Expected 2024
9. *Lijun Chen*: “Metal halide perovskite memristors” – Expected 2024.
10. *Han Wang*: “CQDs photodetectors” -Expected 2025.
11. *Paul Haensch*: “Gas sensor for electronic noses” – Expected 2026.

Post Doctoral Lorenzo di Mario.

Honorary and guest Professors: Christoph J. Brabec (honorary); Bruno Ehler (honorary).

Technicians: Arjan J. Kamp, Teodor Zaharia.

Publications:

Metrics from Web of Science: 235 articles listed, h -index=65, an average citation per article of 51; and about 13000 total citations (data retrieved June 1st, 2022).

Metrics from Google Scholar: h -index=72, and about 17400 total citations.

1. M. Pitaro, R. Pau, H. Duim, M. Mertens, W. T. M. Van Gompel, G. Portale, L. Lutsen, M. A. Loi "Tin-lead-metal halide perovskite solar cells with enhanced crystallinity and efficiency by addition of fluorinated long organic cation" *Applied Physics Reviews* **9**, 021407 (2022).
2. S. Kahmann, Z. Chen, O. Hordiichuk, O. Nazarenko, S. Shao, M. V. Kovalenko, G. R. Blake, S. Tao, M. A. Loi "Compositional Variation in $FAPb_{1-x}Sn_xI_3$ and Its Impact on the Electronic Structure: A Combined Density Functional Theory and Experimental Study" *ACS Appl. Mater. Interfaces* (2022).
3. K. Gahlot, S. de Graaf, H. Duim, G. Nedelcu, R. M. Koushki, M. Ahmadi, D. Gavhane, A. Lasorsa, O. De Luca, P. Rudolf, P. C. A. van der Wel, M. A. Loi, B. J. Kooi, G. Portale, J. Calbo, L. Protesescu "Structural Dynamics and Tunability for Colloidal Tin Halide Perovskite Nanostructures" <https://doi.org/10.1002/adma.202201353>
4. D. Bederak, A. Shulga, S. Kahmann, W. Talsma, J. Pelanskis, D. N. Dirin, M. V. Kovalenko, M. A. Loi "Heterostructure from PbS Quantum Dot and Carbon Nanotube Inks for High-Efficiency Near-Infrared Light-Emitting Field-Effect Transistors" *Adv. Electron. Mater.*, 2101126 (2022).
5. G. Ye, W. Talsma, K. Tran, Y. Liu, S. Dijkstra, J. Cao, J. Chen, J. Qu, J. Song, M. A. Loi, R. C. Chiechi "Polar Side Chains Enhance Selection of Semiconducting Single-Walled Carbon Nanotubes by Polymer Wrapping" *Macromolecules*, 55, 1386 (2022).
6. Chenchen Yang, Harry A. Atwater, Marc A. Baldo, Derya Baran, Christopher J. Barile, Miles C. Barr, Matthew Bates, Mounqi G. Bawendi, Matthew R. Bergren, Babak Borhan, Christoph J. Brabec, Sergio Brovelli, Vladimir Bulović, Paola Ceroni, Michael G. Debije, Jose-Maria Delgado-Sanchez, Wen-Ji Dong, Phillip M. Duxbury, Rachel C. Evans, Stephen R. Forrest, Daniel R. Gamelin, Noel C. Giebink, Xiao Gong, Gianmarco Griffini, Fei Guo, Christopher K Herrera, Anita WY Ho-Baillie, Russell J Holmes, Sung-Kyu Hong, Thomas Kirchartz, Benjamin G. Levine, Hongbo Li, Yilin Li, Dianyi Liu, Maria A. Loi, Christine K. Luscombe, Nikolay S. Makarov, Fahad Mateen, Raffaello Mazzaro, Hunter McDaniel, Michael D. McGehee, Francesco Meinardi, Amador Menéndez-Velázquez, Jie Min, David B. Mitzi, Mehdi Moemeni, Jun Hyuk Moon, Andrew Nattestad, Mohammad K. Nazeeruddin, Ana F. Nogueira, Ulrich W. Paetzold, David L. Patrick, Andrea Pucci, Barry P. Rand, Elsa Reichmanis, Bryce S. Richards, Jean Roncali, Federico Rosei, Timothy W. Schmidt, Franky So, Chang-Ching Tu, Aria Vahdani, Wilfried G.J.H.M. van Sark, Rafael Verduzco, Alberto Vomiero, Wallace W. H. Wong, Kaifeng Wu, Hin-Lap Yip, Xiaowei Zhang, Haiguang Zhao, Richard R. Lunt "Consensus statement: Standardized reporting of power-producing luminescent solar concentrator performance" *Joule* 6, 8 (2022).
7. A. Simbula, R. Pau, F. Liu, L. Wu, S. Lai, A. Geddo Lehmann, A. Filippetti, M. A. Loi, D. Marongiu, F. Quochi, M. Saba, A. Mura, G. Bongiovanni "Direct measurement of radiative decay rates in metal halide perovskites" *Energy Environ. Sci.*, 15, 1211 (2022).
8. M. Pitaro, E. K. Tekelenburg, S. Shao, M. A. Loi "Tin Halide Perovskites: From Fundamental Properties to Solar Cells" *Adv. Mater.*, 34, 2105844 (2022).
9. H. Duim & M.A. Loi "Chiral hybrid organic-inorganic metal halides: A route toward direct detection and emission of polarized light" *Matter*, 4, 3835 (2021).
10. O. Almora, D. Baran, G. C. Bazan, C. Berger, C. I. Cabrera, K. R. Catchpole, S. Erten-Ela, F. Guo, J. Hauch, A. W. Y. Ho-Baillie, T. J. Jacobsson, R. A. J. Janssen, T. Kirchartz, N. Kopidakis, Y. Li, M. A. Loi, R. R. Lunt, X. Mathew, M. D. McGehee, J. Min, D. B. Mitzi, M. K. Nazeeruddin, J. Nelson, A. F. Nogueira, U. W. Paetzold, N.-G. Park, B. P. Rand, U. Rau, H. J. Snaith, E. Unger, L. Vaillant-Roca, H.-L. Yip, and C. J. Brabec "Device Performance of Emerging Photovoltaic Materials (Version 2)" *Adv. Energy Mater.*, 11, 2102526 (2021).
11. V. M. Goossens, N. V. Sukharevska, D. N. Dirin, M. V. Kovalenko, and M. A. Loi "Scalable fabrication of

- efficient p-n junction lead sulfide quantum dot solar cells” *Cell Reports Physical Science* 2,100655 (2021).
12. M. Dyksik, H. Duim, D. K. Maude, M. Baranowski, M. A. Loi, P. Plochocka “Brightening of dark excitons in 2D perovskites” *Sci. Adv.* 7, eabk0904 (2021).
 13. B. I. Ito, E. K. Tekelenburg, G. R. Blake, M. A. Loi, and A. F. Nogueira “Double Perovskite Single-Crystal Photoluminescence Quenching and Resurge: The Role of Cu Doping on its Photophysics and Crystal Structure” *J. Phys. Chem. Lett.*, 12, 10444 (2021).
 14. M. Pitaro, E. K. Tekelenburg, S. Shao, and M. A. Loi “Tin Halide Perovskites: From Fundamental Properties to Solar Cells” *Adv. Mater.* #2105844 (2021).
 15. D. Garcia Romero, L. Di Mario, G. Portale and M. A. Loi “Crystallization driven boost in fill factor and stability in additive-free organic solar cells” *J. Mater. Chem. A*, 9, 23783 (2021).
 16. S. Kahmann, H. Duim, A. J. Rommens, E. K. Tekelenburg, S. Shao, M. A. Loi “Grain-Specific Transitions Determine the Band Edge Luminescence in Dion–Jacobson Type 2D Perovskites” *Adv. Optical Mater.* 9, 2100892 (2021).
 17. J. Xi, H. Duim, M. Pitaro, K. Gahlot, J. Dong, G. Portale, M. A. Loi “Scalable, Template Driven Formation of Highly Crystalline Lead-Tin Halide Perovskite Films” *Adv. Funct. Mater.* 31, 2105734, (2021).
 18. M. J. Rivera-Medina, A. Carrillo-Verduzco, A. Rodríguez-Gómez, M. A. Loi, J. C. Alonso-Huitrón “White-emission from ZnS:Eu incorporated in AC-driven electroluminescent devices via ultrasonic spray pyrolysis” *Materials Chemistry and Physics*, 270, 12486 (2021).
 19. A. Filippetti, S. Kahmann, C. Caddeo, A. Mattoni, M. Saba, A. Bosin and M. A. Loi, “Fundamentals of tin iodide perovskites: a promising route to highly efficient, lead-free solar cells” *J. Mater. Chem. A*, 9, 11812 (2021).
 20. S. Shao, M. Nijenhuis, J. Dong, S. Kahmann, G. H. ten Brink, G. Portale and M. A. Loi, “Influence of the stoichiometry of tin-based 2D/3D perovskite active layers on solar cell performance” *J. Mater. Chem. A*, 9, 10095 (2021).
 21. E. K. Tekelenburg, S. Kahmann, M. E. Kamminga, G. R. Blake, and M. A. Loi “Elucidating the Structure and Photophysics of Layered Perovskites through Cation Fluorination” *Adv. Optical Mater.*, 2001647 (2021).
 22. S. Shao & M.A. Loi “Advances and Prospective in Metal Halide Ruddlesden–Popper Perovskite Solar Cells” *Adv. Energy Mater.*, 11, 2003907 (2021).
 23. N. Sukharevska, D. Bederak, V. M. Goossens, J. Momand, H. Duim, D. N. Dirin, M. V. Kovalenko, B. J. Kooi, and M. A. Loi “Scalable PbS Quantum Dot Solar Cell Production by Blade Coating from Stable Inks” *ACS Appl. Mater. Interfaces*, 13, 5195 (2021).
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M. A. Loi, E. Da Como and M. Muccini, "Morphology correlated photophysics in organic semiconductor thin films by confocal laser microscopy and spectroscopy" in Photophysics of Molecular Materials" Ed. by G. Lanzani, Wiley-VCH, Weinheim (2005).

C. Piliago, K. Zsendrei and **M.A. Loi**, "Semiconducting Polymer composite Based Bipolar transistors" in Semiconducting Polymer Composites, Edited by Xiaoniu Yang Chapter, Wiley-VCH, Weinheim (2012).

D. M. Balazs, M. J. Speirs, **M. A. Loi**, "Colloidal Inorganic–Organic Hybrid Solar Cells" in *Organic and Hybrid Solar Cells*, edited by Hui Huang and Jinsong Huang, Springer International Publishing Switzerland (2014).

Patents:

Patent number 18190979.7

Inventors: A. G. Shulga, **M.A. Loi**

Title "Imaging device based on colloidal quantum dots",

Priority date: 08. 2018.

International patent (World Intellectual Property Organization) WO03106422 (2003)

Inventors: M. Muccini, **M.A. Loi**, N. Masciocchi and N. Sironi

Title: "BLUE EMITTING TRIS (8-OXOQUINOLINE) ALUMINUM (III) (AIQ3) "

Priority Date: 14.06.2002

Invited lectures at international conferences and workshops:

1. MRS Spring-Fall merged meeting, online (December 2020). Keynote live lecture: Is There Any Hope for Efficient Sn-Based Perovskite Solar Cells?

2. MRS Fall Meeting. Boston 2019. Invited Lecture: Cooling, scattering and recombination: the role of the material quality for the physics of tin halide perovskites.
3. Perovskite Solar Cells and Optoelectronics (PSCO). October 2019, Lausanne, Switzerland. Invited Lecture: Scalable fabrication of high-quality crystalline and stable FAPb₃ thin films.
4. The 29th International Conference on Photochemistry, Bolder, US. (July 2019) Invited Lecture: Cooling, scattering and recombination: The role of the material quality for the physics of tin halide perovskites.
5. International Conference on Materials for Advanced Technologies (ICMAT), Singapore June 2019. Invited Lecture: Enhancing the crystallinity of Sn-based perovskites for highly efficient devices.
6. EMRS Spring Meeting 2019, Nice, France. Invited Lecture: Understanding surface passivation in methylammonium lead tribromide single crystals.
7. MRS Spring Meeting 2019. Invited Lecture: Electronic metamaterials with colloidal quantum dots.
8. KAUST Research Conference: 3rd Generation photovoltaic technologies and beyond, Kaust, Saudi Arabia (February 2019). Invited Lecture: Sn-based Hybrid Perovskites from solar cells to hot electrons.
9. ABXPV, RENNES, France (February 2018). Invited Lecture: Sn-based Hybrid Perovskites from solar cells to hot electrons.
10. MRS Spring Meeting, Phoenix, USA (April 2018). Invited Lecture: Photoexcitation Dynamics in Solution-Processed Formamidinium Lead Iodide Thin Films for Solar Cell Applications.
11. MRS Spring Meeting, Phoenix, USA (April 2018). Invited Lecture:
12. 10th International Conference on Hybrid and Organic Photovoltaics (HOPV), Benidorm, Spain (May 2018). Invited Lecture: Sn-based Hybrid Perovskites: From Solar Cells to Hot Electrons.
13. Gordon Research Conference on Electronic Processes in Organic Materials, Barga, Italy (July 2018). Invited Lecture: Sn-based Hybrid Perovskites: From Solar Cells to Hot Electrons.
14. Gordon Research Conference Exploiting Defects and Interfaces in Paradigm-Shifting Processing and Extreme Environments, Mount Holyoke College, MA, USA (August 2018). Invited Lecture: Controlling Surface Trap Density in Hybrid Perovskites
15. HoW Exciting! Berlin, Germany (August 2018). Invited Lecture: Hot carriers slow relaxation in Sn-based hybrid perovskites.
16. Royal Society of Chemistry Symposia on Electronic and Photonic Materials, Japan (November 2017). Invited Lecture: Hybrid perovskites: from fundamental properties to devices.
17. 12th International Conference on Optical Probes of Organic and Hybrid Semiconductors (OP2017), Québec City, Canada, (19-23 June 2017). Invited Lecture: Hybrid perovskite from surface traps to hot carriers.
18. MRS-Spring meeting, Phoenix, US (April 2017). Invited Lecture: "PbS QD solar cells: the open circuit voltage problem".
19. MRS-Spring meeting, Phoenix, US (April 2017). Invited Lecture: "Controlling surface trap density in hybrid perovskites".
20. Carbon Nanotubes Meet 2D Materials, Heidelberg, Germany (November 2016). Invited Lecture: "Polymer-SWNT hybrids: toward high performance field effect transistors"
21. International Conference on Fundamental Processes in Semiconductor Nanocrystals (FQDots16), Berlin, Germany (September 2016). Invited Lecture: "PbS QD solar cells: the open circuit voltage problem".
22. Gordon Research Conference 2016 on Colloidal Semiconductor Nanocrystals, Mount Snow resort, West Dover, VT, US (August 2016). Invited Lecture: "PbS from FETs to Efficient Solar Cells: The Role of the Ligands".
23. International Conference on Hybrid and Organic Photovoltaics (HOPV16), Swansea, United Kingdom (28th June - 1st July 2016). Invited Lecture: "Photoexcitation dynamics in solution-processed formamidinium lead iodide".
24. International Conference on the Science and Technology of Synthetic Metals, ICSM2016, Guangzhou, China, (June 26 - July 1, 2016). Invited Lecture: "Polymer-SWNT hybrids: toward high performance field effect transistors".
25. *New trends in solar cells* conference, Bratislava, Slovakia, (April 19-22, 2016). **Keynote Lecture** "Organic interlayers for efficient and stable hybrid perovskite solar cells".
26. PacifiChem 2015, Honolulu, US (December 2015) Symposium Nanostructured Oxides for Energy Harvesting and Water Splitting. Invited Lecture: "QDs for photocatalytic water splitting".

27. Hybrid-Photovoltaics 2015 Symposium, Campus Adlershof, Berlin, Germany, (10 - 11 Dec 2015). Invited lecture: "Photoexcitation dynamics in hybrid perovskites".
28. Cecam workshop "Theory of metal atoms, clusters and nanoparticles stabilized by organic matter" Helsinki June 2015. Invited Lecture: "Colloidal Quantum Dot Solids: determination of the energy levels and tuning of the electronic properties".
29. MRS-Spring meeting, San Francisco, US (April 2015). Invited Lecture: "Charge transfer in organic-organic heterostructures".
30. European Workshop on Organic and Graphene Electronics and Spintronics, Barcelona, Spain (March 2015). Invited Lecture: "Polymer-wrapped SWNTs for high performing field effect transistors".
31. 578. WE-Heraeus-Seminar on Charge-Transfer Effects in Organic Heterostructures: Fundamentals and Applications, Physikzentrum Bad Honnef, Germany (December 2014). Invited Lecture: "Charge transfer in organic-organic heterostructures".
32. MRS-Fall meeting, Boston, US, (December 2014). Invited Lecture: "Solution processable inorganic-organic hybrids for solar cells and water splitting".
33. 1st Meeting of Materials Research Society of Indonesia (MRS-Id Meeting 2014), Bali, Indonesia (September 26th-28th 2014). **Keynote Lecture:** "Colloidal Quantum Dots for Electronics and Optoelectronics".
34. 2nd Light Conference organized by the Changchun Institute of Optics and Light: Science and Applications (Nature publishing Group), China (July 3-4, 2014). Invited lecture: "Singlet and triplet exciton diffusion in organic semiconductors".
35. 26th Workshop on Quantum Solar Energy Conversion - (QUANTSOL 2014) Rauris, Austria (March 16-21, 2014). Invited Lecture: "Towards high efficiency solar cells with colloidal quantum dots".
36. MRS-Fall meeting, Boston, US, (December 2014). Invited Lecture: "PbS quantum dots for electronic and optoelectronic".
37. MRS-Fall meeting, Boston, US, (December 2013). Invited Lecture: "PbS Quantum Dots for Electronics and OptoElectronics".
38. International Conference on Advanced Electromaterials (ICAE 2013), Jeju Island, Korea (November, 2013). Invited Lecture: "Carbon nanotubes for high performance field effect transistors".
39. Solar cells workshop of the Institute for Pure and Applied Mathematics (IPAM), University of California Los Angeles US (September 23 - 27, 2013). Invited Lecture: "Colloidal semiconductor solids for efficient solar cells".
40. "Solar Energy for World Peace" Istanbul, Turkey (August 17-19, 2013). Invited lecture: "Towards high performing PbS solar cells".
41. "International Symposium on Modern Optics and Its Applications (ISMOA)" Bandung, Indonesia (June 24-27, 2013). Invited lecture: "Photophysics of organic solar cells".
42. "International Symposium on Flexible Electronics Materials · Devices · Concepts" Erlangen, Germany (June 19-21, 2013). Invited lecture: "Polymer wrapped carbon nanotubes for highly performing field effect transistors".
43. "Next Generation organic solar cells" Groningen, The Netherlands (June 2-4, 2013). Invited Lecture: "Physics of organic and hybrid solar Cells".
44. "Sanken Symposium" Osaka, Japan (January 21-23, 2013). Invited Lecture: "Hybrid solar Cells".
45. "International Symposium on Fundamental Electronic Processes in Organic Semiconductors and Functional Interfaces" (OFET 2012) Princeton, NJ, USA (October 27-31, 2012). Invited Lecture: "Singlet, Triplet and Charge Transfer Excitons in Organic Semiconductors".
46. CECAM Conference "ENERGY FROM THE SUN: Computational chemist and Physicist take up the challenge" Chia Laguna, Italy (September 10 - 14, 2012). Invited Lecture: New approaches toward high efficiency solar energy conversion.
47. "International Conference on Science and Technology of Synthetic Metals 2012" (ICSM 2012), Atlanta, GA, USA (July 8 - 13, 2012). Invited Lecture: "Hybrid semiconductors fundamental properties and optoelectronics".
48. EMRS-Spring meeting, Strasbourg, France (May 2012). Invited Lecture: "Hybrid semiconductors optoelectronic devices".
49. MRS-Fall meeting, Boston, US (November 28 till December 2, 2011). Invited Lecture: "Charge transfer excitons in narrow band-gap polymers for organic solar cells".

50. 10th "International Symposium on Functional pi-electron systems" Beijing, China (October 13 - 17, 2011). Invited Lecture: "Hybrid Optoelectronic devices".
51. "Workshop on Emerging Materials for Thin Film Solar Cells" University of California, Santa Barbara, California, US (August 7 - 13, 2011). Invited Lecture: "Hybrids thin film solar cells".
52. SIMMposium 2011, Radboud University, Nijmegen, The Netherlands (16-17 May 2011). Invited Lecture: "Organic-Inorganic Hybrid Materials: from fundamental properties to optoelectronic devices".
53. 219th meeting of the Electrochemical Society, Montreal, Canada, (May 1-6, 2011). Invited Lecture: "Polymer wrapped carbon nanotubes doing it all: from selection to self-assembly of semiconducting devices".
54. International Symposium on Organic Transistors and Functional Interfaces (OFET 2010), Les Diablerets, Switzerland (6-10 May 2010). Invited Lecture: "Ambipolar field effect transistors".
55. 5th Winterschool on Organic Electronics, Austria (6th-12th March, 2010). Invited lecture: "Light emitting Field Effect Transistors".
56. Workshop on Nanodiagnostic and Emerging Research (WONDER) Milano, Italy (19th November 2009). Invited lecture: "Charge transfer excitons in organic bulk heterojunctions for photovoltaic applications".
57. International Commission for Optics (ICO) Topical Meeting on "Emerging Trends and Novel Materials in Photonics", Delphi, Greece (October 2009). Invited lecture: "Organic-inorganic hybrids for photonic applications".
58. "Photonic devices conference, SPIE" San Diego, California, United States (August 2009). Invited lecture: "Photophysics of organic bulk Heterojunctions for photovoltaic applications".
59. "School of nanophotonics and photovoltaics", Santiago de Cuba, Cuba (January 2009). Invited lecture: "Charge transfer Excitons in organic bulk Heterojunctions for photovoltaic applications".
60. "8th International Symposium on Functional π -Electron Systems (F π 8)", Graz, Austria (July 2008). Invited lecture: "Nanomaterials from fundamental properties to devices".
61. 1st workshop on "Low Energy Spectroscopies (LESS)", Vienna, Austria (January 2007). Invited lecture: "Photoluminescence spectroscopy of organic semiconductors".
62. Organic Electronic Summer School (OESS): Transport in carbon based conjugated material, Alghero, Italy (June 2005). Invited lecture: "Organic semiconductors thin films: from supramolecular organization to multifunctional devices".

Invited session chair at international conferences:

1. Gordon Conference on Electronic Processes in Organic Materials, Barga, Italy (May 5-10, 2014). Invited session chair: Organic Solar cells photophysics.

National invited conferences and workshops (selection):

- Dutch Perovskite workshop, Eindhoven, The Netherlands (July 2018). Invited lecture: "Beyond Pb-based Hybrid Perovskites".
- Sun Day, Bussum, The Netherlands (November 2017). Invited lecture: Highly efficient hybrid perovskite solar cells by interface engineering.
- Focus section on Hybrid Perovskites FOM Veldhoven, Veldhoven, The Netherlands (January 2016). Invited lecture: "Photophysics of Hybrid perovskite single crystals".
- Dutch Perovskite Workshop, Delft, The Netherlands (June 2015). "Photophysics of hybrid perovskite single crystals".
- Ameland, PhD network (Groningen-Nijmegen-Twente) workshop, Ameland, The Netherlands (June 2014). "Physics of Quantum Dots".
- FYSICA-CHEMIE 2012, Twente, The Netherlands (May 2012). Invited Lecture: "Physics of carbon nanotubes based hybrids".
- "Award Winners Section" FOM Veldhoven, Veldhoven, The Netherlands (January 2012). Invited Lecture: "Physics of carbon nanotubes based hybrids".

- SIMMposium 2011, Radboud University, Nijmegen, The Netherlands (16-17 May 2011). Invited Lecture: "Organic-Inorganic Hybrid Materials: from fundamental properties to optoelectronic devices".
- Focus section on excitons FOM Veldhoven, Veldhoven, The Netherlands (January 2009). Invited lecture: "Charge transfer Excitons in organic bulk Heterojunctions for photovoltaic applications".
- III Dutch Molecular Electronics Workshop, Groningen, The Netherlands (March 2006). Invited lecture: "Morphology correlated photophysics in organic semiconductors by confocal laser microscopy and spectroscopy".