

PERSONAL INFORMATION

Family name, First name: Brovelli, Sergio

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Place and Date of birth: Angera (Va), 07/11/1978

Nationality: Italian

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1) BIOGRAPHICAL SKETCH

Sergio Brovelli, is Associate Professor at the Department of Materials Science of the University of Milano-Bicocca and co-founder & chair of the scientific committee of Glass to Power SpA. He graduated in 2003 and earned his PhD in Materials Science (2006) at the University of Milano Bicocca. In 2006, he moved to University College London and London Centre for Nanotechnology (UK) where he received a Marie Skłodowska-Curie Postdoctoral Fellowship that funded his research until December 2009. In 2010 he moved to the Chemistry and Physical Chemistry Division of the Los Alamos National Laboratory where, in 2011, he was awarded with the prestigious Los Alamos Director's Fellowship. In 2012, supported by a Marie Skłodowska-Curie Career Reintegration Grant, he moved back to Europe as Assistant Professor at the University of Milano Bicocca where he established his independent research group focused on the synthesis, manipulation and spectroscopic investigation of solution-grown functional nanostructures and their application in photonic and optoelectronic devices. In 2015, he was tenured with the Associate Professorship in Experimental Physics and, in 2017, he received the National Italian Habilitation for Full Professorship. The quality of his research is confirmed by over 100 publications most of which as first or corresponding author in high-impact factor journals (1 *Science*, 4 *Nature Nanotechnology*, 3 *Nature Photonics*, 1 *Nature Reviews Materials*, 4 *Nature Communications*, 14 *Nano Letters*, etc...), two book chapters, five journal cover pages and numerous invited talks in international conferences. S.B. has h-index of 39 and over 5800 citations. He is the author of six patent families. In 2016, he co-founded the company Glass to Power SpA with the main mission of industrializing and commercializing new solar windows based on his patented nanocrystal-based luminescence solar concentrators.

2) EDUCATION

–2006: PhD Materials Science, Department of Materials Science, University of Milano-Bicocca, Milano, Italy.
Graduation: December 15, 2006

–2003: MS Materials Science, Department of Materials Science, University of Milano-Bicocca, Milano, Italy.
Graduation: November 18, 2003

–1996: European Baccalaureate, European School in Varese, Italy.
Graduation: July 1996

3) APPOINTMENTS

–2016: Co-founder and Chief Science Officer of Glass to Power SpA, www.glasstopower.com

–2015: Associated Professor (Habilitated for full Professorship), University of Milano-Bicocca, Italy

–2012– 2015 Assistant Professor, University of Milano-Bicocca, Italy

–2010 – 2011 Los Alamos Director's Fellow, Los Alamos National Laboratory, New Mexico, USA

–2007 – 2010 Postdoctoral Marie Curie Research Associate *and* Scientific Project Manager, University College London (UCL) and London Centre for Nanotechnology, London, UK

4) PUBLICATION AND PATENT STATISTICS (SOURCE: Google Scholar)

- Number of publications: **102**

- Book Chapters: **2**

- Number of citations: **5810**
- H-index: **39**

5) ORGANISATION OF SCIENTIFIC MEETINGS

- 2019 Co-Chair Symposium W “Semiconductor nanostructures towards electronic and opto-electronic device applications – VII” EMRS Spring Meeting, Nice, France
- 2016 Chair of the Symposium "Advanced nanotechnologies for green energy" Nano Innovation Conference & Exhibition Rome – Italy
- 2015 Co-Director of the Course: Scientific and Technological Advances in Cardiac and vascular surgery: A translational Approach, International School of Cardiac Surgery & International School of Solid State Physics. Erice –Italy
- 2014 Program Committee Chair, 8th International Conference on Quantum Dots, Pisa Italy.
- 2012 Organizer of the 7th International Conference on Quantum Dots, Santa Fe, USA.

6) OPEN INNOVATION & INTERPRENEURIAL ACTIVITY

28/09/2016 Foundation of the spin-off company Glass to Power SpA, initial stock capital: €300k. Current evaluation €12.2M, 13 full-time employees.

7) COMMISSIONS OF TRUST

Member of the Editorial Board of *Energy Materials Advances*. Reviewer for numerous Scientific Journals including: Nature, Nature Materials/ Nanotechnology/ Photonics/ Energy/ Communications, Advanced Materials, JACS, Nano Letters, ACS NANO, Advanced Energy Materials, ACS Photonics, Advanced Functional Materials and other Elsevier, IOP, AIP e ACS journals.

8) INVITED PRESENTATIONS TO PEER-REVIEWED, INTERNATIONALLY ESTABLISHED CONFERENCES AND/OR INTERNATIONAL ADVANCED SCHOOLS

Over 70 Invited conference presentations, seminars/lectures/colloquia at Universities, Research Centers and Companies.

9) PRIZES, AWARDS, RECOGNITIONS AND FELLOWSHIPS

1. Premio Speciale Circular Economy, StartupItalia, **2018**
2. Open Innovation for Circularity Award, American Chamber of Commerce, **2018**
3. BDO Mario Unnia Award, **2018**
4. Marzotto Venture Award, **2017**
5. Sette Green Award - RCS Editorial Group, **2016**
6. R&D100 Special Recognition Award for Green Technologies, **2016**
7. Finalist of the 'Young Researcher Award' of the International Materials Research Societies, **2014**
8. Director’s Fellowship, Los Alamos National Laboratory, **2010**
9. Marie (S) Curie Postdoctoral Research Fellowship, **2007**
10. Angelo Della Riccia Foundation Fellowship, **2007**
11. Tronchetti Provera Foundation Fellowship, **2003-2006**

12. Most Relevant Publications

- 1 Liu, M., Wan, Q., Wang, H., Carulli, F., Sun, X., Zheng, W., Kong, L., Zhang, Q., Zhang, C., Zhang, Q., Brovelli, S. & Li, L. Suppression of temperature quenching in perovskite nanocrystals for efficient and thermally stable light-emitting diodes. *Nature Photon.* (2021).
- 2 Imran, M., Peng, L., Pianetti, A., Pinchetti, V., Ramade, J., Zito, J., Di Stasio, F., Buha, J., Toso, S., Song, J., Infante, I., Bals, S., Brovelli, S. & Manna, L. Halide Perovskite–Lead Chalcohalide Nanocrystal Heterostructures. *J. Am. Chem. Soc.* (2021).
- 3 Zhu, D., Zito, J., Pinchetti, V., Dang, Z., Olivati, A., Pasquale, L., Tang, A., Zaffalon, M. L., Meinardi, F., Infante, I., De Trizio, L., Manna, L. & Brovelli, S. Compositional Tuning of Carrier Dynamics in Cs₂Na_{1-x}Ag_xBiCl₆ Double-Perovskite Nanocrystals. *ACS Energy Letters* **5**, 1840-1847 (2020).

- 4 Zhu, D., Zaffalon, M. L., Pinchetti, V., Brescia, R., Moro, F., Fasoli, M., Fanciulli, M., Tang, A., Infante, I., De Trizio, L., Brovelli, S. & Manna, L. Bright Blue Emitting Cu-Doped Cs₂ZnCl₄ Colloidal Nanocrystals. *Chem. Mater.* **32**, 5897-5903 (2020).
- 5 Zhang, B., Goldoni, L., Lambruschini, C., Moni, L., Imran, M., Pianetti, A., Pinchetti, V., Brovelli, S., De Trizio, L. & Manna, L. Stable and Size Tunable CsPbBr₃ Nanocrystals Synthesized with Oleylphosphonic Acid. *Nano Lett.* **20**, 8847-8853 (2020).
- 6 Mattiello, S., Sanzone, A., Bruni, F., Gandini, M., Pinchetti, V., Monguzzi, A., Facchinetti, I., Ruffo, R., Meinardi, F., Mattioli, G., Sassi, M., Brovelli, S. & Beverina, L. Chemically Sustainable Large Stokes Shift Derivatives for High-Performance Large-Area Transparent Luminescent Solar Concentrators. *Joule* **4**, 1988-2003 (2020).
- 7 Lagonegro, P., Martella, C., Squeo, B. M., Carulli, F., Scavia, G., Lamperti, A., Galeotti, F., Dubertret, B., Pasini, M., Brovelli, S., Molle, A. & Giovanella, U. Prolonged Lifetime in Nanocrystal Light-Emitting Diodes Incorporating MoS₂-Based Conjugated Polyelectrolyte Interfacial Layer as an Alternative to PEDOT:PSS. *ACS Applied Electronic Materials* **2**, 1186-1192 (2020).
- 8 Gandini, M., Villa, I., Beretta, M., Gotti, C., Imran, M., Carulli, F., Fantuzzi, E., Sassi, M., Zaffalon, M., Brofferio, C., Manna, L., Beverina, L., Vedda, A., Fasoli, M., Gironi, L. & Brovelli, S. Efficient, fast and reabsorption-free perovskite nanocrystal-based sensitized plastic scintillators. *Nature Nanotech.* **15**, 462-468 (2020).
- 9 Busatto, S., Ruiter, M. d., Jastrzebski, J. T. B. H., Albrecht, W., Pinchetti, V., Brovelli, S., Bals, S., Moret, M.-E. & de Mello Donega, C. Luminescent Colloidal InSb Quantum Dots from In Situ Generated Single-Source Precursor. *ACS Nano* **14**, 13146-13160 (2020).
- 10 Bai, B., Zhao, C., Xu, M., Ma, J., Du, Y., Chen, H., Liu, J., Liu, J., Rong, H., Chen, W., Weng, Y., Brovelli, S. & Zhang, J. Unique Cation Exchange in Nanocrystal Matrix via Surface Vacancy Engineering Overcoming Chemical Kinetic Energy Barriers. *Chem* **6**, 3086-3099 (2020).
- 11 Anand, A., Zaffalon, M. L., Gariano, G., Camellini, A., Gandini, M., Brescia, R., Capitani, C., Bruni, F., Pinchetti, V., Zavelani-Rossi, M., Meinardi, F., Crooker, S. A. & Brovelli, S. Evidence for the Band-Edge Exciton of CuInS₂ Nanocrystals Enables Record Efficient Large-Area Luminescent Solar Concentrators. *Adv. Funct. Mater.* **30**, 1906629 (2020).
- 12 Rodà, C., Abdelhady, A. L., Shamsi, J., Lorenzon, M., Pinchetti, V., Gandini, M., Meinardi, F., Manna, L. & Brovelli, S. O₂ as a molecular probe for nonradiative surface defects in CsPbBr₃ perovskite nanostructures and single crystals. *Nanoscale* **11**, 7613-7623 (2019).
- 13 Pinchetti, V., Shornikova, E. V., Qiang, G., Bae, W. K., Meinardi, F., Crooker, S. A., Yakovlev, D. R., Bayer, M., Klimov, V. I. & Brovelli, S. Dual-Emitting Dot-in-Bulk CdSe/CdS Nanocrystals with Highly Emissive Core- and Shell-Based Triions Sharing the Same Resident Electron. *Nano Lett.* **19**, 8846-8854 (2019).
- 14 Pinchetti, V., Anand, A., Akkerman, Q. A., Sciacca, D., Lorenzon, M., Meinardi, F., Fanciulli, M., Manna, L. & Brovelli, S. Trap-Mediated Two-Step Sensitization of Manganese Dopants in Perovskite Nanocrystals. *ACS Energy Letters* **4**, 85-93 (2019).
- 15 Locardi, F., Sartori, E., Buha, J., Zito, J., Prato, M., Pinchetti, V., Zaffalon, M. L., Ferretti, M., Brovelli, S., Infante, I., De Trizio, L. & Manna, L. Emissive Bi-Doped Double Perovskite Cs₂Ag_{1-x}NaxInCl₆ Nanocrystals. *ACS Energy Letters* **4**, 1976-1982 (2019).
- 16 Khan, A. H., Pinchetti, V., Tanghe, I., Dang, Z., Martín-García, B., Hens, Z., Van Thourhout, D., Geiregat, P., Brovelli, S. & Moreels, I. Tunable and Efficient Red to Near-Infrared Photoluminescence by Synergistic Exploitation of Core and Surface Silver Doping of CdSe Nanoplatelets. *Chem. Mater.* **31**, 1450-1459 (2019).
- 17 Della Sala, P., Buccheri, N., Sanzone, A., Sassi, M., Neri, P., Talotta, C., Rocco, A., Pinchetti, V., Beverina, L., Brovelli, S. & Gaeta, C. First demonstration of the use of very large Stokes shift cycloparaphenylenes as promising organic luminophores for transparent luminescent solar concentrators. *Chem. Commun.* **55**, 3160-3163 (2019).
- 18 Capitani, C., Pinchetti, V., Gariano, G., Santiago-González, B., Santambrogio, C., Campione, M., Prato, M., Brescia, R., Camellini, A., Bellato, F., Carulli, F., Anand, A., Zavelani-Rossi, M., Meinardi, F., Crooker, S. A. & Brovelli, S. Quantized Electronic Doping towards Atomically Controlled “Charge-Engineered” Semiconductor Nanocrystals. *Nano Lett.* **19**, 1307-1317 (2019).
- 19 Villa, C., Campione, M., Santiago-González, B., Alessandrini, F., Erratico, S., Zucca, I., Bruzzone, M. G., Forzenigo, L., Malatesta, P., Mauri, M., Trombetta, E., Brovelli, S., Torrente, Y., Meinardi, F. & Monguzzi, A. Self-Assembled pH-Sensitive Fluoromagnetic Nanotubes as Archetype System for Multimodal Imaging of Brain Cancer. *Adv. Funct. Mater.* **28**, 1707582 (2018).
- 20 Santiago-Gonzalez, B., Monguzzi, A., Capitani, C., Prato, M., Santambrogio, C., Meinardi, F. & Brovelli, S. Bottom-up Synthesis and Self-Assembly of Copper Clusters into Permanent Excimer Supramolecular Nanostructures. *Angew. Chem. Int. Ed.* **57**, 7051-7055 (2018).
- 21 Pinchetti, V., Di, Q., Lorenzon, M., Camellini, A., Fasoli, M., Zavelani-Rossi, M., Meinardi, F., Zhang, J.,

- Crooker, S. A. & Brovelli, S. Excitonic pathway to photoinduced magnetism in colloidal nanocrystals with nonmagnetic dopants. *Nature Nanotech.* **13**, 145-151 (2018).
- 22 Paleari, A., Meinardi, F., Brovelli, S. & Lorenzi, R. Competition between green self-trapped-exciton and red non-bridging-oxygen emissions in SiO₂ under interband excitation. *Communications Physics* **1**, 67 (2018).
- 23 Locardi, F., Cirignano, M., Baranov, D., Dang, Z., Prato, M., Drago, F., Ferretti, M., Pinchetti, V., Fanciulli, M., Brovelli, S., De Trizio, L. & Manna, L. Colloidal Synthesis of Double Perovskite Cs₂AgInCl₆ and Mn-Doped Cs₂AgInCl₆ Nanocrystals. *J. Am. Chem. Soc.* **140**, 12989-12995 (2018).
- 24 Giovanella, U., Pasini, M., Lorenzon, M., Galeotti, F., Lucchi, C., Meinardi, F., Luzzati, S., Dubertret, B. & Brovelli, S. Efficient Solution-Processed Nanoplatelet-Based Light-Emitting Diodes with High Operational Stability in Air. *Nano Lett.* **18**, 3441-3448 (2018).
- 25 Santiago-González, B., Monguzzi, A., Pinchetti, V., Casu, A., Prato, M., Lorenzi, R., Campione, M., Chiodini, N., Santambrogio, C., Meinardi, F., Manna, L. & Brovelli, S. “Quantized” Doping of Individual Colloidal Nanocrystals Using Size-Focused Metal Quantum Clusters. *ACS Nano* (2017).
- 26 Santiago-Gonzalez, B., Monguzzi, A., Caputo, M., Villa, C., Prato, M., Santambrogio, C., Torrente, Y., Meinardi, F. & Brovelli, S. Metal Nanoclusters with Synergistically Engineered Optical and Buffering Activity of Intracellular Reactive Oxygen Species by Compositional and Supramolecular Design. *Sci. Rep.* **7**, 5976 (2017).
- 27 Pinchetti, V., Lorenzon, M., McDaniel, H., Lorenzi, R., Meinardi, F., Klimov, V. I. & Brovelli, S. Spectro-electrochemical Probing of Intrinsic and Extrinsic Processes in Exciton Recombination in I-III-VI₂ Nanocrystals. *Nano Lett.* **17**, 4508-4517 (2017).
- 28 Meinardi, F., Ehrenberg, S., Dharmo, L., Carulli, F., Mauri, M., Bruni, F., Simonutti, R., Kortshagen, U. & Brovelli, S. Highly efficient luminescent solar concentrators based on earth-abundant indirect-bandgap silicon quantum dots. *Nature Photon.* **11**, 177-185 (2017).
- 29 Meinardi, F., Bruni, F. & Brovelli, S. Luminescent solar concentrators for building-integrated photovoltaics. *Nature Reviews Materials* **2**, 17072 (2017).
- 30 Meinardi, F., Akkerman, Q. A., Bruni, F., Park, S., Mauri, M., Dang, Z., Manna, L. & Brovelli, S. Doped Halide Perovskite Nanocrystals for Reabsorption-Free Luminescent Solar Concentrators. *ACS Energy Letters* **2**, 2368-2377 (2017).
- 31 Lorenzon, M., Sortino, L., Akkerman, Q., Accornero, S., Pedrini, J., Prato, M., Pinchetti, V., Meinardi, F., Manna, L. & Brovelli, S. Role of Nonradiative Defects and Environmental Oxygen on Exciton Recombination Processes in CsPbBr₃ Perovskite Nanocrystals. *Nano Lett.* (2017).
- 32 Lorenzon, M., Pinchetti, V., Bruni, F., Bae, W. K., Meinardi, F., Klimov, V. I. & Brovelli, S. Single-Particle Ratiometric Pressure Sensing Based on “Double-Sensor” Colloidal Nanocrystals. *Nano Lett.* **17**, 1071-1081 (2017).
- 33 Bruni, F., Pedrini, J., Bossio, C., Santiago-Gonzalez, B., Meinardi, F., Bae, W. K., Klimov, V. I., Lanzani, G. & Brovelli, S. Two-Color Emitting Colloidal Nanocrystals as Single-Particle Ratiometric Probes of Intracellular pH. *Adv. Funct. Mater.*, 1605533-n/a (2017).
- 34 Tregnago, G., Serri, M., Brovelli, S., McDonnell, S. O., Korniyuchuk, P., Wang, L., Wykes, M., Beljonne, D., Tracz, A., Anderson, H. L. & Cacialli, F. Increased luminescence efficiency by synergistic exploitation of lipo/hydrophilic co-solvency and supramolecular design. *J. Mater. Chem. C* (2016).
- 35 Santiago-Gonzalez, B., Monguzzi, A., Azpiroz, J. M., Prato, M., Erratico, S., Campione, M., Lorenzi, R., Pedrini, J., Santambrogio, C., Torrente, Y., De Angelis, F., Meinardi, F. & Brovelli, S. Permanent excimer superstructures by supramolecular networking of metal quantum clusters. *Science* **353**, 571-575 (2016).
- 36 Pinchetti, V., Meinardi, F., Camellini, A., Sirigu, G., Christodoulou, S., Bae, W. K., De Donato, F., Manna, L., Zavelani-Rossi, M., Moreels, I., Klimov, V. I. & Brovelli, S. Effect of Core/Shell Interface on Carrier Dynamics and Optical Gain Properties of Dual-Color Emitting CdSe/CdS Nanocrystals. *ACS Nano* **10**, 6877-6887 (2016).
- 37 Pietryga, J. M., Park, Y.-S., Lim, J., Fidler, A. F., Bae, W. K., Brovelli, S. & Klimov, V. I. Spectroscopic and Device Aspects of Nanocrystal Quantum Dots. *Chem. Rev.* **116**, 10513-10622 (2016).
- 38 Mosconi, E., Saluatori, P., Saba, M. I., Mattoni, A., Bellani, S., Bruni, F., Santiago Gonzalez, B., Antognazza, M. R., Brovelli, S., Lanzani, G., Li, H., Brédas, J.-L. & De Angelis, F. Surface Polarization Drives Photoinduced Charge Separation at the P3HT/Water Interface. *ACS Energy Letters* **1**, 454-463 (2016).
- 39 Meinardi, F., McDaniel, H., Carulli, F., Colombo, A., Velizhanin, K. A., Makarov, N. S., Simonutti, R., Klimov, V. I. & Brovelli, S. Highly efficient large-area colourless luminescent solar concentrators using heavy-metal-free colloidal quantum dots. *Nature Nanotech.* **10**, 878-885 (2015).
- 40 Lorenzon, M., Christodoulou, S., Vaccaro, G., Pedrini, J., Meinardi, F., Moreels, I. & Brovelli, S. Reversed oxygen sensing using colloidal quantum wells towards highly emissive photoresponsive varnishes. *Nature Commun.* **6** (2015).

- 41 Christodoulou, S., Rajadell, F., Casu, A., Vaccaro, G., Grim, J., Genovese, A., Manna, L., Climente, J. I., Meinardi, F., Rainò, G., Stöferle, T., Mahrt, R. F., Planelles, J., Brovelli, S. & Moreels, I. Band Structure Engineering via Piezo-Electric Fields in Strained Anisotropic CdSe/CdS Nanocrystals. *Nature Commun.* **6**, 7905 (2015).
- 42 Castelli, A., Meinardi, F., Pasini, M., Galeotti, F., Pinchetti, V., Lorenzon, M., Manna, L., Moreels, I., Giovanella, U. & Brovelli, S. High-Efficiency All-Solution-Processed Light-Emitting Diodes Based on Anisotropic Colloidal Heterostructures with Polar Polymer Injecting Layers. *Nano Lett.* **15**, 5455-5464 (2015).
- 43 Meinardi, F., Colombo, A., Velizhanin, K. A., Simonutti, R., Lorenzon, M., Beverina, L., Viswanatha, R., Klimov, V. I. & Brovelli, S. Large area luminescent solar concentrators based on "Stokes-shift-engineered" nanocrystals in mass polymerized polymethylmethacrylate matrix. *Nature Photon.* **8**, 392-399 (2014).
- 44 Bruni, F., Sassi, M., Campione, M., Giovanella, U., Ruffo, R., Luzzati, S., Meinardi, F., Beverina, L. & Brovelli, S. Post-Deposition Activation of Latent Hydrogen-Bonding: A New Paradigm for Enhancing the Performances of Bulk Heterojunction Solar Cells. *Adv. Funct. Mater.* **24**, 7410-7419 (2014).
- 45 Brovelli, S., Bae, W. K., Meinardi, F., Santiago González, B., Lorenzon, M., Galland, C. & Klimov, V. I. Electrochemical Control of Two-Color Emission from Colloidal Dot-in-Bulk Nanocrystals. *Nano Lett.* **14**, 3855-3863 (2014).
- 46 Galland, C., Brovelli, S., Bae, W. K., Padilha, L. A., Meinardi, F. & Klimov, V. I. Dynamic Hole Blockade Yields Two-Color Quantum and Classical Light from Dot-in-Bulk Nanocrystals. *Nano Lett.* **13**, 321-328 (2013).
- 47 Brovelli, S., Bae, W. K., Galland, C., Giovanella, U., Meinardi, F. & Klimov, V. I. Dual-Color Electroluminescence from Dot-in-Bulk Nanocrystals. *Nano Lett.* **14**, 486-494 (2013).
- 48 Bae, W. K., Brovelli, S. & Klimov, V. I. Spectroscopic Insights into the Performance of Quantum Dot Light Emitting Diodes. *Mrs Bull.* **38**, 721-730 (2013).
- 49 Zalewski, L., Mativetsky, J. M., Brovelli, S., Bonini, M., Crivillers, N., Breiner, T., Anderson, H. L., Cacialli, F. & Samorì, P. A quarterthiophene-based rotaxane: synthesis, spectroscopy and self-assembly at surfaces *Small* **8**, 1835-1839 (2012).
- 50 Pandey, A., Brovelli, S., Viswanatha, R., Li, L., Pietryga, J. M., Klimov, V. I. & Crooker, S. A. Long-lived photoinduced magnetization in copper doped ZnSe-CdSe core-shell nanocrystals. *Nature Nanotech.* **7**, 792-797 (2012).
- 51 Pal, B. N., Ghosh, Y., Brovelli, S., Laocharoensuk, R., Klimov, V. I., Hollingsworth, J. A. & Htoon, H. 'Giant' CdSe/CdS Core/Shell Nanocrystal Quantum Dots As Efficient Electroluminescent Materials: Strong Influence of Shell Thickness on Light-Emitting Diode Performance. *Nano Lett.* **12**, 331-336 (2012).
- 52 Brovelli, S., Sforazzini, G., Serri, M., Winroth, G., Suzuki, K., Meinardi, F., Anderson, H. L. & Cacialli, F. Emission Color Trajectory and White Electroluminescence Through Supramolecular Control of Energy Transfer and Exciplex Formation in Binary Blends of Conjugated Polyrotaxanes. *Adv. Funct. Mater.* **22**, 4284-4291 (2012).
- 53 Brovelli, S., Galland, C., Viswanatha, R. & Klimov, V. I. Tuning Radiative Recombination in Cu-Doped Nanocrystals via Electrochemical Control of Surface Trapping. *Nano Lett.* **12**, 4372-4379 (2012).
- 54 Brovelli, S., Chiodini, N., Lorenzi, R., Lauria, A., Romagnoli, M. & Paleari, A. Fully inorganic oxide-in-oxide ultraviolet nanocrystal light emitting devices. *Nature Commun.* **3**, 690 (2012).
- 55 Viswanatha, R., Brovelli, S., Pandey, A., Crooker, S. A. & Klimov, V. I. Copper-Doped Inverted Core/Shell Nanocrystals with "Permanent" Optically Active Holes. *Nano Lett.* **11**, 4753-4758 (2011).
- 56 Garcia-Santamaria, F., Brovelli, S., Viswanatha, R., Hollingsworth, J. A., Htoon, H., Crooker, S. A. & Klimov, V. I. Breakdown of Volume Scaling in Auger Recombination in CdSe/CdS Heteronanocrystals: The Role of the Core-Shell Interface. *Nano Lett.* **11**, 687-693 (2011).
- 57 Di Stasio, F., Korniyuchuk, P., Brovelli, S., Uznanski, P., McDonnell, S. O., Winroth, G., Anderson, H. L., Tracz, A. & Cacialli, F. Highly Polarized Emission from Oriented Films Incorporating Water-Soluble Conjugated Polymers in a Polyvinyl Alcohol Matrix. *Adv. Mater.* **23**, 1855 (2011).
- 58 Brovelli, S., Schaller, R. D., Crooker, S. A., Garcia-Santamaria, F., Chen, Y., Viswanatha, R., Hollingsworth, J. A., Htoon, H. & Klimov, V. I. Nano-engineered electron-hole exchange interaction controls exciton dynamics in core-shell semiconductor nanocrystals. *Nature Commun.* **2**, 280 (2011).
- 59 Paleari, A., Brovelli, S., Lorenzi, R., Giussani, M., Lauria, A., Mochenova, N. & Chiodini, N. Tunable Dielectric Function in Electric-Responsive Glass with Tree-Like Percolating Pathways of Chargeable Conductive Nanoparticles. *Adv. Funct. Mater.* **20**, 3511-3518 (2010).
- 60 Brovelli, S., Virgili, T., Mroz, M. M., Sforazzini, G., Paleari, A., Anderson, H. L., Lanzani, G. & Cacialli, F. Ultra-Broad Optical Amplification and Two-Colour Amplified Spontaneous Emission in Binary Blends of Insulated Molecular Wires. *Adv. Mater.* **22**, 3690 (2010).
- 61 Brovelli, S., Meinardi, F., Winroth, G., Fenwick, O., Sforazzini, G., Frampton, M. J., Zalewski, L., Levitt,

- J. A., Marinello, F., Schiavuta, P., Suhling, K., Anderson, H. L. & Cacialli, F. White Electroluminescence by Supramolecular Control of Energy Transfer in Blends of Organic-Soluble Encapsulated Polyfluorenes. *Adv. Funct. Mater.* **20**, 272-280 (2010).
- 62 Petrozza, A., Brovelli, S., Michels, J. J., Anderson, H. L., Friend, R. H., Silva, C. & Cacialli, F. Control of rapid formation of interchain excited states in sugar-threaded supramolecular wires. *Adv. Mater.* **20**, 3218 (2008).
- 63 Latini, G., Parrott, L. J., Brovelli, S., Frampton, M. J., Anderson, H. L. & Cacialli, F. Cyclodextrin-threaded conjugated polyrotaxanes for organic electronics: The influence of the counter cations. *Adv. Funct. Mater.* **18**, 2419-2427 (2008).
- 64 Frampton, M. L., Sforazzini, G., Brovelli, S., Latini, G., Townsend, E., Williams, C. C., Charas, A., Zalewski, L., Kaka, N. S., Sirish, M., Parrott, L. J., Wilson, J. S., Cacialli, F. & Anderson, H. L. Synthesis and Optoelectronic Properties of Nonpolar Polyrotaxane Insulated Molecular Wires with High Solubility in Organic Solvents. *Adv. Funct. Mater.* **18**, 3367-3376 (2008).
- 65 Brovelli, S., Latini, G., Frampton, M. J., McDonnell, S. O., Oddy, F. E., Fenwick, O., Anderson, H. L. & Cacialli, F. Tuning Intrachain versus Interchain Photophysics via Control of the Threading Ratio of Conjugated Polyrotaxanes. *Nano Lett.* **8**, 4546-4551 (2008).