

CV of Liberato Manna



Born December 5th 1971, Italian Citizen

Research interests

Advanced Synthesis, structural characterization and assembly of inorganic nanostructures, with emphasis on the development of complex three-dimensional nano-hetero-structures.

Professional Preparation

Ph.D. in Chemistry, University of Bari, Italy, 2001

M.S. in Chemistry, with Honours, University of Bari, Italy, 1996

Appointments

- April 2009-current: Head of the Nanochemistry Facility at the Italian Institute of Technology in Genova (Italy)
2006-March 2009: Leader of the Chemistry Division at the National Nanotechnology Lab in Lecce (Italy)
2003-2008: Junior Scientist at the National Nanotechnology Lab in Lecce (Italy)
2003: Visiting Scientist at the Center for Nanoscience, Munich (Germany)
2001-2003: Postdoctoral Fellow, University of California, Berkeley
1999-2000: Visiting student, University of California, Berkeley

Major Research Grants Secured

- 2009-2013: European Research Council (ERC) FP7 starting grant recipient (NANO-ARCH, contract n. 240111)
2006-2009: European FP6 Marie Curie TOK Network, scientific leader for NNL (NANOTAIL, contract n. 042459)
2006-2010: Italy-USA Bilateral Project (Italian Min. of Research), scientific leader for NNL (contract n. RBIN048TSE)
2005-2008: European project FP6 STREP, project coordinator (SA-NANO, contract n. 013698)

Publications and Patents

110 papers in international journals (6 review articles), excluding conference proceedings, 14 book chapters, 6600 citations, H index 29 (ISI Web of Science, May 2010); 4 covers of journal issues; 1 paper as first author among the 20 most cited JACS articles in the last 3 years; 1 review article as corresponding author among the 10 most cited articles in Chemical Society Reviews of 2006; 10 issued patents, 10 patent applications

Awards & research highlights:

- 2010: Highlighted by the Journal of Materials Chemistry as among the top twenty emerging investigators in materials chemistry worldwide.
2009: Highlighted in the October 2009 issue of ScienceWatch for “Emerging Research Front Paper in the field of Materials Science” (Thomson Reuters, <http://sciencewatch.com/>).
2009: European Research Council (ERC) Starting Grant recipient
2009: R&D 100 Award recipient for ‘Cost Competitive Solar Cells’
2007: ‘Ugo Campisano’ Young Investigator Award in Materials Science (Italian Institute for Condensed Matter Physics, www.infm.it).
2007: Ranked #9 among the most cited scientists worldwide working on nanocrystals by ‘Essential Science Indicators’ (Thomson Scientific), www.esi-topics.com.
2005: Top nine innovators in Italy younger than 35 (Financial magazine ‘Il Sole 24 ore’)
2002: ‘Berkeley Lab Technology Transfer Award’.
2001: ‘Semerano Award’ (Italian Association of Physical Chemistry): best PhD thesis in Physical Chemistry in Italy in 2001.
2000: ‘Umberto Maria Grassano Award’ (Italian Association of Physics).

Invited talks at conferences

34 invited talks at international conferences/workshops/schools.

Invited Seminars/Lectures/Colloquia

27 invited seminars/lectures/colloquia in Universities, Research Centres and Companies:

Department of Physics, Imperial College (London, UK); Agilent Labs, Palo Alto, CA (USA); Versant Ventures, Menlo Park, CA (USA); INFM National Centre S3, Modena (Italy); Engineering Department, University of Cambridge (UK); Naval Research Lab, Washington DC (USA); CNR, Area di Ricerca di Bologna (Italy) (2 seminars); Department of Physical Chemistry, University of Vigo (Spain); Centro Nacional de Microelectrónica, Barcelona (Spain); Department of Chemistry, University of Bari (Italy) (2 seminars); CNR-IRSA, Bari (Italy); Department of Innovation Engineering, University of Lecce (Italy) (2 seminars); The Molecular Foundry, LBL Berkeley (USA); Max Planck Institute for Metals Research, Stuttgart (Germany) (2 seminars); Kavli Institute of Nanoscience, Delft (The Netherlands); Department of Physics, University of Pisa (Italy); Department of Chemistry and Pharmacology (University of Munich, Germany); Department of Physics and Astronomy, University of Southampton (UK); Polytechnic of Milan (Italy); FORTH (Heraklion, Greece); Hebrew University of Jerusalem (Israel); Ecole Normale Supérieure de Cachan, Paris (France).

Teaching Expertise

Delivered many talks on general aspects of nanoparticles at various international schools

Fall semester 2004: taught a class on 'Polymer Science' (University of Lecce)

Spring semester 2006: taught a class on 'Physical Chemistry of interfaces' (University of Lecce)

Organization of conference/symposia:

- 2010: Organizer of the Symposium "Science and Technology of Nanotubes and Nanowires and Graphene" at the upcoming June 8-10 2010 European Materials Research Society Spring Meeting (EMRS2010) in Strasbourg, France
2008. Organized the International Conference in Lecce 'Nanoscience with Nanocrystals'

Editorial Board Membership

Member of the Editorial Boards of the 'Journal of Experimental Nanoscience' and of the 'Journal of Nano-Optics and Nanoelectronics'

Papers in peer-reviewed journals (excluding conference proceedings):

1997

- 1.C. Giacobozzo, L. Manna, D. Siliqi, 'The translation problem in molecular replacement techniques: 2. The estimate of quartet invariants', *Acta Crystallographica A*, 1997, 53, 799-806.

1998

2. C. Giacobozzo, L. Manna, D. Siliqi, M. Bolognesi, M. Rizzi, 'The translation problem in molecular replacement techniques: I. About the role of triplet invariants', *Acta Crystallographica A*, 1998, 54, 617-625.
3. J.C. Dobrowolski, M.H. Jamroz, J.K. Kazimirski, K. Bajdor, K. Borowiak, L. Manna, M.L. Miglietta, M. Aresta, 'The M(O-2)X(YH3)(3) dioxygen complexes (M = Rh, Co; X = F, Cl, Br, I; Y = N, P): An ab initio, DFT and semiempirical PM3(tm) study', *Polish Journal Of Chemistry*, 1998, 72, 2205-2217.

2000

4. A. Agostiano, M. Catalano, M.L. Curri, M. Della Monica M., L. Manna, L. Vasanelli, 'Synthesis and structural characterization of CdS nanoparticles prepared in a four components water in oil microemulsion', *Micron*, 2000, 31, 253-258.
5. X. Peng, L. Manna, W. Yang, J. Wickham, E. Scher, A. Kadavanich, A.P. Alivisatos, 'Shape control of CdSe nanocrystals', *Nature*, 2000, 404 (6773), 59-61.
6. G. Leo, M.L. Curri, A. Cola, M. Catalano, M. Lomascolo, L. Manna, F. Quaranta, A. Agostiano, G.M. Farinola, F. Babudri, F. Naso, M. Della Monica, L. Vasanelli, 'Preparation and characterisation of organic-

inorganic heterojunction based on BDA-PPV/CdS nanocrystals', *Materials Science And Engineering B*, 2000, 74, 175-179.

7. M.L. Curri, A. Agostiano, L. Manna, M. Della Monica, M. Catalano, L. Chiavarone, V. Spagnolo, M. Lugara, 'Synthesis and characterization of CdS nanoclusters in a quaternary microemulsion: The role of the cosurfactant', *Journal of Physical Chemistry B*, 2000, 104, 8391-8397.
8. L. Manna, E. Scher, A.P. Alivisatos, 'Synthesis of Soluble and Processable Rod, Arrow, Teardrop, and Tetrapod Shaped CdSe Nanocrystals', *Journal of the American Chemical Society*, 2000, 122(51); 12700-12706.

2001

9. J. Hu, L. Li, W. Yang, L. Manna, L. Wang, and A. P. Alivisatos, 'Linearly Polarized Emission from Colloidal Semiconductor Quantum Rods', *Science*, 2001, 292, 2060-2063.

2002

10. L. Manna, E. Scher, L. Li, and A. P. Alivisatos, 'Epitaxial growth and photochemical annealing of graded CdS/ZnS shells on colloidal CdSe nanorods', *Journal of the American Chemical Society*, 2002, 124 (24), 7136-7145.
11. L. Li, J. Walda, L. Manna and A. P. Alivisatos, 'Semiconductor Nanorod Liquid Crystals', *Nano Letters*, 2002, 2 (6) 557-560 (the cover of this issue was dedicated to this article).
12. L. Manna, E. Scher, and A. P. Alivisatos, 'Shape control of Colloidal Semiconductor Nanocrystals', *Journal of Cluster Science*, 2002, 13(4), 521-532.

2003

13. M. Epifani, G. Leo, M. Lomascolo, L. Vasanelli and L. Manna, 'Sol-gel synthesis of hybrid organic-inorganic monoliths doped with size-selected CdSe/ZnS core-shell nanoparticles', *Journal of Sol-Gel Science and Technology*, 2003, 26, 441-446.
14. E. Scher, L. Manna and A. P. Alivisatos, 'Shape control and Applications of Nanocrystals', *Philosophical Transactions of the Royal Society of London, series A*, 2003, 361, 241-257.
15. M. Lomascolo, A. Creti, G. Leo, L. Manna and L. Vasanelli, 'Exciton Relaxation processes in colloidal core/shell ZnSe/ZnS nanocrystals', *Applied Physics Letters*, 2003, 82(3), 418-420.
16. L. Manna, D.J. Milliron, A. Meisel, E. Scher and A. P. Alivisatos, 'Controlled Growth of Tetrapod Branched Inorganic Nanocrystals', *Nature Materials*, 2003, 2(6), 382-385.

2004

17. T. Pellegrino, L. Manna, S. Kudera, T. Liedl, D. Koktysh, A. Rogach, S. Keller, J. Rädler, G. Natile and W. J. Parak, 'Hydrophobic nanocrystals coated with an amphiphilic polymer shell: a general route to water soluble nanocrystals', *Nano Letters*, 2004, 4 (4), 703-707.
18. M. Epifani, C. Giannini and L. Manna, 'A novel synthesis of CdSe nanocrystals', *Materials Letters*, 2004, 58 (19), 2429-2432.
19. D.J. Milliron, S.M. Hughes, Y. Cui, L. Manna, J. Li, L.W. Wang, and A.P. Alivisatos, 'Colloidal nanocrystal heterostructures with linear and branched topology', *Nature*, 2004, 430 (6996), 190-195.
20. A. Puzder, A. J. Williamson, N. Zaitseva, G. Galli, L. Manna, and A. P. Alivisatos, 'The effect of organic ligand binding on the growth of CdSe nanoparticles probed by Ab initio calculations', *Nano Letters* 2004, 4 (12), 2361-2365.
21. M. Anni, L. Manna, R. Cingolani, D. Valerini, A. Creti, and M. Lomascolo, 'Forster energy transfer from blue-emitting polymers to colloidal CdSe/ZnS core shell quantum dots', *Applied Physics Letters*, 2004, 85 (18), 4169-4171.

2005

22. S. Kudera, L. Carbone, M. F. Casula, R. Cingolani, A. Falqui, E. Snoeck, W. J. Parak, and L. Manna, 'Selective growth of PbSe on one or on both tips of colloidal semiconductor nanorods', *Nano Letters*, 2005, 5(3), 445-449.
23. L. Manna, L. W. Wang, R. Cingolani, and A. P. Alivisatos, 'First-Principles Modeling of Unpassivated and Surfactant-Passivated Bulk Facets of Wurtzite CdSe: A Model System for Studying the Anisotropic Growth of CdSe Nanocrystals', *Journal of Physical Chemistry B*, 2005, 109 (13), 6183-6192.

24. P. D. Cozzoli, L. Manna, M. L. Curri, S. Kudera, C. Giannini, M. Striccoli, and A. Agostiano, 'Shape and Phase Control of Colloidal ZnSe Nanocrystals', *Chemistry of Materials*, 2005, 17, 1296-1306.
25. T. Pellegrino, S. Kudera, T. Liedl, A. M. Javier, L. Manna, and Wolfgang J. Parak, 'On the Development of Colloidal Nanoparticles towards Multifunctional Structures and their Possible Use for Biological Applications', *Small*, 2005, 1(1), 48-63.
26. N. Zaitseva, L. Manna, F. Leon, D. Gerion, and C. Saw, 'Precipitation of Se crystals from solutions of CdSe nanocrystals', *Advanced Materials*, 2005, 17, 1321-1324.
27. Y. Li, A. Rizzo, M. Mazzeo, L. Carbone, L. Manna, R. Cingolani and G. Gigli 'White organic light-emitting devices using CdSe/ZnS quantum dots as a red emitters', *Journal of Applied Physics*, 2005, 97, art. No 113501.
28. De Giorgi M., Tari D., Manna L, R. Krahne and R. Cingolani, 'Optical properties of colloidal nanocrystal spheres and tetrapods', *Microelectronics Journal*, 2005, 36 (3-6), 552-554
29. D. Valerini, A. Creti, M. Lomascolo, L. Manna, R. Cingolani, M. Anni, 'Temperature dependence of the photoluminescence properties of colloidal CdSe/ZnS core/shell quantum dots embedded in a polystyrene matrix', *Physical Review B*, 2005, 71, art. No. 235409.
30. A. Creti, M. Anni, M. Z. Rossi, G. Lanzani, G. Leo, F. Della Sala, L. Manna and M. Lomascolo, 'Ultrafast carrier dynamics in core and core/shell CdSe quantum rods: Role of the surface and interface defects', *Physical Review B*, 2005, 72, 125346.
31. L. Blasi, L. Longo, P.P. Pompa, L. Manna, G. Ciccarella, G. Vasapollo, R. Cingolani, R. Rinaldi, A. Rizzello, R. Acierno, C. Storelli, and M. Maffia, 'Formation and characterization of glutamate dehydrogenase monolayers on silicon supports', *Biosensors and Bioelectronics* 21, 2005, 30-40.
32. D. Tari, M. De Giorgi, F. Della Sala, L. Carbone, R. Krahne, L. Manna, R. Cingolani, S. Kudera and W. J. Parak, 'Optical properties of tetrapod-shaped CdTe nanocrystals', *Applied Physics Letters*, 87, 2005, art. No. 224101.
33. P. D. Cozzoli and L. Manna, 'Tips on growing nanocrystals', *News and Views article, Nature Materials* 2005, 4(11), 801-802.

2006

34. L. Carbone, S. Kudera, E. Carlino, W. J. Parak, C. Giannini, R. Cingolani and L. Manna, 'Multiple wurtzite twinning in CdTe nanocrystals induced by methylphosphonic acid', *Journal of the American Chemical Society*, 128(3), 2006, 748-755.
35. P.P. Pompa, R. Chiuri, L. Manna, T. Pellegrino, L.L. del Mercato, W.J. Parak, F. Calabi, R. Cingolani and R. Rinaldi, 'Fluorescence resonance energy transfer induced by conjugation of metalloproteins to nanoparticles', *Chemical Physics Letters* 417, 2006, 351-357.
36. R. Krahne, G. Chilla, C. Schüller, L. Carbone, S. Kudera, G. Mannarini, L. Manna, D. Heitmann and R. Cingolani, 'Confinement Effects on Optical Phonons in Polar Tetrapod Nanocrystals Detected by Resonant Inelastic Light Scattering', *Nano Letters*, 2006, 6(3), 478-482.
37. A. Creti, M. Zavelani-Rossi, G. Lanzani, M. Anni, L. Manna and M. Lomascolo, 'The role of the shell thickness in Stimulated Emission and Photoinduced Absorption in CdSe core/shell nanorods', *Physical Review B*, 2006, 73, art. No. 165410.
38. S. Kudera, L. Carbone, M. Zanella, R. Cingolani, W. J. Parak, and L. Manna, 'Synthesis and perspectives of complex crystalline nano-structures', *Physica Status Solidi A*, 203, No. 6, 1329-1336 (2006)
39. R. Krahne, G. Chilla, C. Schüller, S. Kudera, D. Tari, M. De Giorgi, D. Heitmann, R. Cingolani and L. Manna, 'Shape dependence of the scattering processes of optical phonons in colloidal nanocrystals detected by Raman spectroscopy', *Journal of Nanoelectronics and Optoelectronics*, 2006, 1, 107-110.
40. T. Pellegrino, A. Fiore, E. Carlino, C. Giannini, P. D. Cozzoli, G. Ciccarella, M. Respaud, L. Palmirotta, R. Cingolani and L. Manna, 'Heterodimers based on CoPt₃-Au Nanocrystals with tunable domain size', *Journal of the American Chemical Society*, 2006, 128(20), 6690-6698.
41. L. Martiradonna, L. Carbone, M. De Giorgi, L. Manna, G. Gigli, R. Cingolani, and M. De Vittorio, 'High Q-factor colloidal nanocrystal-based vertical microcavity by hot embossing technology', *Applied Physics Letters*, 88, 2006, art. No. 181108.
42. P. D. Cozzoli, E. Snoeck, M. A. Garcia, C. Giannini, A. Guagliardi, A. Cervellino, F. Gozzo, A. Hernando, K. Achterhold, N. Ciobanu, F. G. Parak, R. Cingolani, and L. Manna, 'Colloidal Synthesis and Characterization of Tetrapod-Shaped Magnetic Nanocrystals', *Nano Letters*, 2006, 6(9), 1966-1972.
43. D. Tari, M. De Giorgi, P. P. Pompa, L. Carbone, L. Manna, S. Kudera and R. Cingolani, 'Exciton transitions in tetrapod-shaped CdTe nanocrystals investigated by photomodulated transmittance spectroscopy', *Applied Physics Letters*, 2006, 89, art. No. 094104.

44. S. Malkmus, S. Kudera, L. Manna, W. J. Parak and M. Braun, 'Electron-hole dynamics in CdTe tetrapods', *Journal of Physical Chemistry B*, 2006, 110(35), 17334-17338.
45. L. Carbone, S. Kudera, C. Giannini, G. Ciccarella, R. Cingolani, P. D. Cozzoli and L. Manna, 'Selective reactions on the tips of colloidal semiconductor nanorods', *Journal of Materials Chemistry*, 2006, 16, 3952–3956.
46. P. D. Cozzoli, T. Pellegrino and L. Manna, 'Synthesis, Properties and Perspectives of Hybrid Nanocrystal structures', *Chemical Society Reviews*, 2006, 35, 1195–1208.
47. P. P. Pompa, L. Martiradonna, A. Della Torre, F. Della Sala, L. Manna, M. De Vittorio, F. Calabi, R. Cingolani, and R. Rinaldi, 'Metal-enhanced fluorescence of colloidal nanocrystals with nanoscale control', *Nature Nanotechnology*, 2006, 1 (2), 126-130.

2007

48. S. Kudera, L. Carbone, E. Carlino, R. Cingolani, P. D. Cozzoli and L. Manna, 'Synthesis routes for the growth of complex nanostructured', *Physica E*, 37 (2007) 128–133.
49. A. Fasoli, A. Colli, S. Kudera, L. Manna, S. Hofmann, C. Ducati, J. Robertson and A. C. Ferrari, 'Catalytic and seeded shape-selective synthesis of II-VI semiconductor nanowires', *Physica E*, 37 (2007) 138–141.
50. S. Kudera, M. Zanella, C. Giannini, A. Rizzo, Y.Q. Li, G. Gigli, R. Cingolani, G. Ciccarella, W. Spahl, W. J. Parak and L. Manna, 'Sequential growth of magic size CdSe nanocrystals', *Advanced Materials*, 2007, 19, 448-452.
51. A. Rizzo, Y. Li, S. Kudera, F. Della Sala, M. Zanella, W. J. Parak, R. Cingolani, L. Manna and G. Gigli, 'Blue light emitting diodes based on fluorescent CdSe/ZnS nanocrystals', *Applied Physics Letters*, 2007, 90, art. N. 051106.
52. A. Fu, W. Gu, B. Boussert, K. Koski, D. Gerion, L. Manna, M. Le Gros, C. A. Larabell, and A. P. Alivisatos, 'Semiconductor Quantum Rods as Single Molecule Fluorescent Biological Labels', *Nano Letters*, 2007, 7(1), 179-182.
53. C. Tortiglione, A. Quarta, A. Tino, L. Manna, R. Cingolani and T. Pellegrino, 'Synthesis and biological assay of GSH functionalized fluorescent Quantum Dots for staining *Hydra vulgaris*', *Bioconjugate Chemistry*, 2007, 18, 829-835.
54. C. Nobile, L. Carbone, S. Kudera, A. Della Torre, L. Manna, R. Cingolani, R. Krahn, V. A. Fonoberov, A. A. Balandin, G. Chilla, T. Kipp, D. Heitman, 'Confined optical phonon modes in aligned nanorod arrays detected by resonant inelastic light scattering', *Nano Letters*, 2007, 7(2), 476-479.
55. C. Nobile, S. Kudera, A. Fiore, G. Chilla, T. Kipp, D. Heitmann, R. Cingolani, L. Manna, and R. Krahn, 'Confinement effects on optical phonons in spherical, rod-, and tetrapod-shaped nanocrystals detected by Raman spectroscopy', *Phys. Stat. Sol. (a)*, 204(2), 483– 486 (2007).
56. G. Morello, M. De Giorgi, S. Kudera, L. Manna, R. Cingolani and M. Anni, 'Temperature and size dependence of non radiative relaxation and exciton-phonon coupling in colloidal CdTe Quantum Dots', *Journal of Physical Chemistry C*, 2007, 111, 5846-5849.
57. P.P. Pompa, L. Martiradonna, A. Della Torre, L. Carbone, L.L. del Mercato, L. Manna, M. De Vittorio, F. Calabi, R. Cingolani and R. Rinaldi, 'Fluorescence enhancement in colloidal semiconductor nanocrystals by metallic nanopatterns', *Sensors and Actuators B*, 126(1), 187-192
58. M. Casavola, V. Grillo, E. Carlino, C. Giannini, F. Gozzo, E. F. Pinel, M. A. Garcia, L. Manna, R. Cingolani, and P. D. Cozzoli, 'Topologically Controlled Growth of Magnetic-Metal-Functionalized Semiconductor Oxide Nanorods', *Nano Letters*, 2007, 7(5), 1386-1395.
59. G. Morello, M. De Giorgi, P. D. Cozzoli, L. Manna and R. Cingolani, 'Picosecond Photoluminescence Decay Time in Colloidal Nanocrystals: The Role of Intrinsic and Surface States', *Journal of Physical Chemistry C*, 2007, 111, 10541-10545.
60. L. Carbone, C. Nobile, M. De Giorgi, F. Della Sala, G. Morello, P. Pompa, M. Hytch, E. Snoeck, A. Fiore, I. Franchini, M. Nadasan, A. F. Silvestre, L. Chiodo, S. Kudera, R. Cingolani, R. Krahn and L. Manna, 'Synthesis and micrometer-scale assembly of colloidal CdSe/CdS nanorods prepared by a seeded growth approach', *Nano Letters*, 2007, 7 (10), 2942-2950.
61. A. Creti, M. Anni, M. Zavelani Rossi, G. Lanzani, L. Manna and M. Lomascolo, 'Role of defect states on Auger processes in resonantly pumped CdSe nanorods', *Applied Physics Letters*, 91, 093106 (2007).
62. A. Quarta, R. Di Corato, L. Manna and T. Pellegrino, 'Fluorescent-magnetic hybrid nanostructures: preparation, properties and applications in biology', *IEEE transactions on Nanobioscience*, 2007, 6(4) 1536-1241

2008

63. L. Martiradonna, L. Carbone, A. Tandraechanurat, M. Kitamura, S. Iwamoto, L. Manna, M. De Vittorio, R. Cingolani and Y Arakawa, 'Two-Dimensional photonic crystal resist membrane nanocavity embedding colloidal dot-in-a-rod nanocrystals', *Nano Letters*, 2008, 8(1), 260-264.
64. G. Morello, M. Anni, P.D. Cozzoli, L. Manna, R. Cingolani and M. De Giorgi, 'The influence of intrinsic and surface states on the emission properties of colloidal nanocrystals', *Superlattices and Microstructures*, 43, 528-531 (2008)
65. A. Creti, L. Manna, G. Leo and M. Lomascolo, 'Shell-thickness dependence of exciton trapping in colloidal core/shell nanorods', *Journal of Luminescence*, 2008, 128, 361–365.
66. A. Della Torre, P.P. Pompa, L.L. del Mercato, R. Chiuri, R. Krahne, G. Maruccio, L. Carbone, L. Manna, R. Cingolani, R. Rinaldi, S. Shiv Shankar and M. Sastry, 'Interconnection of specific nano-objects by electron beam lithography — A controllable method', *Materials Science and Engineering C*, 2008, 28, 299-302.
67. A. Creti, G. Leo, A. Persano, A. Cola, L. Manna, M. Lomascolo, 'Role of defect states on electrical and optical properties in CdSe nanorod thin films', *Physica E*, 2008, 40, 2063.
68. G. Caputo, C. Nobile, T. Kipp, L. Blasi, V. Grillo, E. Carlino, L. Manna, R. Cingolani, P. D. Cozzoli and A. Athanassiou, 'Reversible wettability changes in colloidal TiO₂ nanorod thin film coatings under selective UV laser irradiation', *Journal of Physical Chemistry C*, 2008, 112(3), 701-714.
69. A. Figuerola, A. Fiore, R. Di Corato, A. Falqui, C. Giannini, Edoardo Micotti, A. Lascialfari, M. Corti, R. Cingolani, T. Pellegrino, P. D. Cozzoli and L. Manna, 'One-pot Synthesis and Characterization of Size Controlled Bi-magnetic FePt-Iron Oxide Heterodimer Nanocrystals', *Journal of the American Chemical Society*, 2008, 130, 1477-1487.
70. A. Fasoli, S. Pisana, A. Colli, L. Carbone, L. Manna, A.C. Ferrari, 'Vapor-phase nucleation of individual CdSe nanostructures from shape-engineered nanocrystal seeds', *Applied Physics Letters*, 2008, art. n. 023106.
71. G. Caputo, C. Nobile, R. Buonsanti, T. Kipp, L. Manna, R. Cingolani, P. D. Cozzoli, A. Athanassiou, 'Determination of surface properties of various substrates using TiO₂ nanorod coatings with tunable characteristics', *Journal of Materials Science*, 2008, 43(10), 3474-3480.
72. A. Quarta, R. Di Corato, L. Manna, S. Argentiere, R. Cingolani, G. Barbarella and Teresa Pellegrino, 'Multifunctional Nanostructures Based on Inorganic Nanoparticles and Oligothiophenes and their Exploitation for Cellular Studies' *Journal of the American Chemical Society*, 2008, 130, 10545–10555.
73. G. Morello, D. Tari, L. Carbone, L. Manna, R. Cingolani, and M. De Giorgi, 'Radiative recombination dynamics in tetrapod-shaped CdTe nanocrystals: Evidence for a photoinduced screening of the internal electric field', *Applied Physics Letters*, 2008, 92, 191905.
74. M. Corti, A. Lascialfari, E. Micotti, A. Castellano, M. Donativi, A. Quarta, P.D. Cozzoli, L. Manna, T. Pellegrino, C. Sangregorio, 'Magnetic properties of novel superparamagnetic MRI contrast agents based on colloidal nanocrystals', *Journal of Magnetism and Magnetic Materials*, 2008, 320 (14), E320-E323
75. R. Di Corato, A. Quarta, P. Piacenza, A. Ragusa, A. Figuerola, R. Buonsanti, R. Cingolani, L. Manna and T. Pellegrino 'Water solubilization of hydrophobic nanocrystals by means of poly(maleic anhydride-alt-1-octadecene)', *Journal of Materials Chemistry* 2008, 18, 1991–1996
76. M. A. Malvindi, L. Carbone, A. Quarta, A. Tino, L. Manna, T. Pellegrino, C. Tortiglione, 'Rod Shaped Nanocrystals Elicit Neuronal Activity In Vivo' *Small*, 2008, 4(10), 1747–1755.
77. M. Zanella, A. Falqui, S. Kudera, L. Manna, M. F. Casula and W. J. Parak, 'Growth of colloidal nanoparticles of group II–VI and IV–VI semiconductors on top of magnetic iron–platinum nanocrystals', *Journal of Materials Chemistry*, 2008, 18, 4311–4317.
78. A. Persano, G. Leo, L. Manna and A. Cola, 'Charge carrier transport in thin films of colloidal CdSe quantum rods', *Journal of Applied Physics*, 2008, 104, 074306.
79. B. v. Holt, S. Kudera, A. Weiss, T. E. Schrader, L. Manna, W. J. Parak and M. Braun, 'Ligand exchange of CdSe nanocrystals probed by optical spectroscopy in the visible and mid-IR', *Journal of Materials Chemistry*, 2008, 18, 2728–2732.
80. A. Creti, M. Anni, M. Z.-Rossi, G. Lanzani, L. Manna and M. Lomascolo, 'Ultrafast carrier dynamics and confined acoustic phonons in CdSe nanorods', *Journal of Optics. A: Pure and Applied Optics*. 10 (2008) 064004.
81. D. Steiner, D. Dorfs, U. Banin, F. Della Sala, L. Manna, and O. Millo, 'Determination of Band Offsets in Heterostructured Colloidal Nanorods Using Scanning Tunneling Spectroscopy', *Nano Letters*, 2008, 8(9), 2954-2958.

82. M. G. Lupo, F. Della Sala, L. Carbone, M. Z.-Rossi, A. Fiore, L. Luer, D. Polli, R. Cingolani, L. Manna, and G. Lanzani, 'Ultrafast Electron-Hole Dynamics in Core/Shell CdSe/CdS Dot/Rod Nanocrystals', *Nano Letters*, 2008, 8(12), 4582-4587.
83. G. Morello, F. Della Sala, L. Carbone, L. Manna, G. Maruccio, R. Cingolani, and M. De Giorgi, 'Intrinsic optical nonlinearity in colloiddally seeded and grown CdSe/CdS nanostructures: Photoinduced screening of the internal electric field', *Physical review B*, 2008, 78(19), art. n. 195313
84. C. Nobile, P. D. Ashby, P. James Schuck, A. Fiore, R. Mastria, R. Cingolani, L. Manna, R. Krahné, 'Probe Tips Functionalized with Colloidal Nanocrystal Tetrapods for High-Resolution Atomic Force Microscopy Imaging', *Small*, 4(12), 2123-2126.

2009

85. L. Chiodo, F. Della Sala, T. Pellegrino, R. Cingolani, and L. Manna, 'An ab initio study of the CoPt3-Au interface: implications on the growth of colloidal CoPt3-Au nanocrystal heterodimers' *Journal of Physics – Condensed Matter*, 2009, 21(1), art. n. 015001.
86. C. Nobile, L. Carbone, A. Fiore, R. Cingolani, L. Manna, and R. Krahné, 'Self assembly of highly fluorescent semiconductor nanorods into large scale smectic liquid crystal structures by coffee stain evaporation dynamics', *Journal of Physics – Condensed Matter*, 2009, 21, art. n. 264013.
87. A. Figuerola, I. R. Franchini, A. Fiore, R. Mastria, A. Falqui, G. Bertoni, S. Bals, G. Van Tendeloo, S. Kudera, R. Cingolani and L. Manna, 'End-to-End Assembly of Shape-Controlled Nanocrystals via a Nano-welding Approach Mediated by Gold Domains', *Advanced Materials*, 2009, 21, 550-554.
88. A. Fiore, R. Mastria, M. G. Lupo, G. Lanzani, C. Giannini, E. Carlino, G. Morello, M. De Giorgi, Y. Lia, R. Cingolani and L. Manna, 'Tetrapod-shaped colloidal nanocrystals of II-VI semiconductors prepared by seeded growth', *Journal of the American Chemical Society*, 2009, 131 (6), 2274-2282.
89. S. Deka, A. Quarta, M. G. Lupo, A. Falqui, S. Boninelli, C. Giannini, G. Morello, M. De Giorgi, G. Lanzani, C. Spinella, R. Cingolani, T. Pellegrino and L. Manna, 'CdSe/CdS/ZnS double shell nanorods with high photoluminescence efficiency and their exploitation as bio-labeling probes', *Journal of the American Chemical Society*, 2009, 131 (8), 2948–2958.
90. L. Carbone, L. Manna, and C. Soennichsen, 'Self-Assembly of Amphiphilic Nanocrystals', *Angewandte Chemie International Edition*, 2009, 48, 2–5.
91. D. Nolle, E. Goering, T. Tietze, G. Schütz, A. Figuerola and L. Manna, 'Structural and magnetic deconvolution of FePt/FeOx -nanoparticles using x-ray magnetic circular dichroism', *New Journal of Physics*, 11 (2009), 033034.
92. A. Rizzo, C. Nobile, M. Mazzeo, M. De Giorgi, A. Fiore, L. Carbone, R. Cingolani, L. Manna and G. Gigli, 'Polarized Light Emitting Diode by Long-Range Nanorod Self-Assembling on a Water Surface', *ACS Nano* (2009), 3 (6), 1506–1512.
93. Y. Li, R. Mastria, A. Fiore, C. Nobile, L. Yin, M. Biasiucci, G. Cheng, A. M. Cucolo, R. Cingolani, L. Manna, and G. Gigli, 'Improved photovoltaic performance of heterostructured tetrapod-shaped CdSe/CdTe nanocrystals using C60 interlayer', *Advanced Materials*, 2009, in press, DOI: 10.1002/adma.200901338.
94. R. Di Corato, P. Piacenza, M. Musarò, R. Buonsanti, P. D. Cozzoli, M. Zambianchi, G. Barbarella, R. Cingolani, L. Manna and T. Pellegrino, 'Magnetic-Fluorescent Colloidal Nano-Beads: Preparation and Exploitation in Cell Separation Experiments', *Macromolecular Bioscience*, 2009, 9, 952–958.
95. A. Lutich, L. Carbone, S. Volchek, V. Yakovtseva, V. Sokol, L. Manna, and S. Gaponenko, 'Macroscale alignment of CdSe/CdS nanorods by porous anodic alumina templates', *Physica Status Solidi Rapid research letters*, 5, 151– 153 (2009).
96. Y. Li, R. Mastria, K. Li, A. Fiore, Y. Wang, R. Cingolani, L. Manna, and G. Gigli, 'Improved photovoltaic performance of bilayer heterojunction photovoltaic cells by triplet materials and tetrapod-shaped colloidal nanocrystals doping', *Applied Physics Letters*, in press, DOI: 10.1063/1.3186074.
97. S. Deka, A. Falqui, C. Sangregorio, G. Poneti, G. Morello, M. De Giorgi, C. Giannini, R. Cingolani, L. Manna, P. D. Cozzoli, 'Fluorescent Asymmetrically Co-Tipped CdSe@CdS Core@Shell Nanorod Heterostructures with Room-Temperature Ferromagnetic Behavior', *Journal of the American Chemical Society*, 2009, 131, 12817–12828.

2010

98. F. Pisanello, L. Martiradonna, P. Spinicelli, A. Fiore, J.P. Hermier, L. Manna, R. Cingolani, E. Giacobino, M. De Vittorio, A. Bramati, "Dots in rods as polarized single photon sources", *Superlattices and Microstructures*, 2010, 47(1), 165-169.

99. M. G. Lupo, M. Zavelani-Rossi, A. Fiore, D. Polli, L. Carbone, R. Cingolani, L. Manna, G. Lanzani, "Evidence of electron wave function delocalization in CdSe/CdS asymmetric nanocrystals", *Superlattices and Microstructures*, 2010, 47(1), 170-173.
100. G. Morello, F. Della Sala, L. Carbone, L. Manna, R. Cingolani, M. De Giorgi, "Evidence for an internal field in CdSe/CdS nanorods by time resolved and single rod experiments", *Superlattices and Microstructures*, published online, 2010, 47(1), 174-177.
101. F. Pisanello, L. Martiradonna, G. Leménager, P. Spinicelli, A. Fiore, L. Manna, J. P. Hermier, R. Cingolani, E. Giacobino, M. De Vittorio, and A. Bramati, "Room temperature-dipolelike single photon source with a colloidal dot-in-rod", *Applied Physics Letters*, 2010, 96, art. n. 033101.
102. M. Zavelani-Rossi, M. G. Lupo, R. Krahné, L. Manna and G. Lanzani "Lasing in self-assembled microcavities of CdSe/CdS core/shell colloidal quantum rods", *Nanoscale*, published online, doi: 10.1039/b9nr00434c
103. I. R. Franchini, G. Bertoni, A. Falqui, C. Giannini, L. W. Wang and L. Manna, "Colloidal PbTe-Au Nanocrystal Heterostructures", *Journal of Materials Chemistry*, 2010, 20, 1357–1366.
104. D. Baranov, A. Fiore, M. van Huis, C. Giannini, A. Falqui, U. Lafont, H. Zandbergen, M. Zanella, R. Cingolani and L. Manna, "Assembly of Colloidal Semiconductor Nanorods in Solution by Depletion Attraction", *Nano Letters*, 2010, 10, 743-749.
105. A. Figuerola, R. Di Corato, L. Manna, T. Pellegrino, "From iron oxide nanoparticles towards advanced iron-based inorganic materials designed for biomedical applications", *Pharmacological Research*, 2010, doi:10.1016/j.phrs.2009.12.012.
106. L. Petti, M. Rippa, A. Fiore, L. Manna and P. Mormile, "Optically induced light modulation in an hybrid nanocomposite system of inorganic CdSe/CdS nanorods and nematic liquid crystals", *Optical Materials*, 2010, in press, doi:10.1016/j.optmat.2010.02.022.
107. L. Petti, M. Rippa, A. Fiore, L. Manna and P. Mormile, Dynamic, "Orientational Photorefractive Gratings Observed in CdSe/CdS Nanorods Doped Nematic Liquid Crystal Cells", *Journal of Nonlinear Optical Physics & Materials*", 2010, in press.
108. L. Petti, M. Rippa, A. Fiore, L. Manna and P. Mormile, "Dynamic Orientational Photorefractive Gratings observed in CdSe/CdS nanorods imbedded in liquid Crystal cells", *Optical Materials*, 2010, in press.
109. A. Persano, M. De Giorgi, A. Fiore, R. Cingolani, L. Manna, A. Cola, R. Krahné, "Photoconduction Properties in Aligned Assemblies of Colloidal CdSe/CdS Nanorods", *ACS Nano*, 2010, 4 (3) 1646–1652.
110. S. Deka, A. Quarta, R. Di Corato, A. Falqui, L. Manna, R. Cingolani, T. Pellegrino, "Acidic pH-responsive nanogels as smart cargo systems for the simultaneous loading and release of short oligonucleotides and magnetic nanoparticles", *Langmuir*, 2010, doi: 10.1021/la1004819.

Book chapters:

1. W. J. Parak, L. Manna, F. C. Simmel, D. Gerion, A. P. Alivisatos: 'Quantum Dots', in *'Nanoparticles: from theory to applications'*, edited by G. Schmidt, Wiley, 2004.
2. L. Manna, M. de Giorgi, D. Tari, L. Carbone, R. Krahné, M. Anni, R. Cingolani, S. Kudera and W. Parak, 'Perspectives of Colloidal Nanocrystals in Nanoscience and Nanotechnology', in *'Proceedings of the International Summer School of Physics 'Enrico Fermi, Course CLX, 2005'*, edited by Società Italiana di Fisica, 2005.
3. C. A. J. Lin, J. K. Li, R. A. Sperling, L. Manna, W. J. Parak and W. H. Chang, 'Quantum dot applications in Biotechnology: progress and challenges', in *'Annual Review of Nano Research'*, Edited by G.Z. Cao and C. J. Brinker, World Scientific, 2006.
4. P. D. Cozzoli and L. Manna, 'Synthetic Strategies to Size and Shape Controlled Nanocrystals and Nanocrystal Heterostructures', in *'Biological Studies and Applications of Engineered Nanostructures'*, edited by W.C.W. Chan, Landes Bioscience, Georgetown, TX, USA, 2007.
5. L. Manna and S. Kudera, 'Mechanisms underlying the growth of inorganic nanoparticles in the liquid phase', in *'Advanced Wet-Chemical Synthetic Approaches to Inorganic Nanostructures'*, Edited by P.D. Cozzoli, Research Signpost, Kerala, India, 2008.
6. S. Kudera, L. Carbone, L. Manna and W. J. Parak, 'Growth mechanism, shape and composition control of semiconductor nanocrystals', Edited by Andrey Rogach, Springer Wien New York, 2008.
7. Colli, C. Giannini, L. Manna and G. Rossi, 'Materials specific challenges for the synthesis of nanomaterials', in *'Genesys White Paper: a new European Partnership between Nanomaterials Science & Nanotechnology and Synchrotron Radiation and Neutron Facilities'*, Ed. By H. Dosch and M. H. Van de Voorde, Max-Planck-Institut für Metallforschung, Stuttgart, 2009.

8. P. P. Pompa, T. Pellegrino and L. Manna, 'Fluorescent Nanocrystals and Proteins', in '*Nanobioelectronics - for Electronics, Biology and Medicine*', ed. by Andreas Offenhäusser and Ross Rinaldi, Springer 2009.
9. D. Dorfs, R. Krahné, C. Giannini, A. Falqui, D. Zanchet and L. Manna, 'Synthesis and characterization of quantum dots', in '*Comprehensive Nanoscience and Technology*', Edited by David Andrews, Greg Scholes and Gary Wiederrecht, Elsevier, in press, 2010.
10. A. Ragusa, A. Zacheo, T. Pellegrino and L. Manna, 'Quantum dot Nanoparticles: Properties, Surface Functionalization, and their applications in biosensing and imaging', in 'Nanostructured Materials for Biomedical Applications', Edited by M. C. Tan, Transworld Research Network, Kerala, India, in press, 2009.
11. R. Krahné and L. Manna. 'Tetrapod-shaped semiconductor nanocrystals', in '*Handbook of Nanophysics*', edited by Klaus Sattler, C&C Press – Taylor and Francis, in press, 2010.
12. S. Deka. A. Figuerola, D. Dorfs, L. Manna, "Hybrid Nanocrystals: Synthesis, characterization and optical and magnetic properties", Encyclopedia of Semiconductor Nanotechnology, Edited by Ahmad Umar, American Scientific Publishers, in press, 2010.
13. Liberato Manna and Roman Krahné, "Colloidal Inorganic Nanocrystals: Synthesis and Controlled Assembly", in "Handbook of Nanofabrication", edited by Stefano Cabrini and Satoshi Kawata, publisher is "Taylor & Francis Group LLC", in press, 2010.
14. Keith W. J. Barnham, Andreas Büchtemann, Ngai L. A. Chan, Amanda J. Chatten, Rahul Bose, Michael G. Debije, Daniel J. Farrell, Liberato Manna, Jana Quilitz, and Ye Xiao, "Luminescent Solar Concentrators", in "Nanotechnology for Photovoltaics", publisher is "Taylor & Francis Group LLC", in press, 2010.