

## John F. Donegan

Professor of Physics and Principal Investigator in  
CRANN Nanoscience Research Centre



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and [http://www.crann.tcd.ie/assets/CRANN\\_PI\\_JD.pdf](http://www.crann.tcd.ie/assets/CRANN_PI_JD.pdf)

### Academic background:

1982	B.Sc. (1 <sup>st</sup> Class Hons)	Physics, National University of Ireland, Galway
1984	M.Sc.	Physics, National University of Ireland, Galway
1986	Ph.D.	Physics, National University of Ireland, Galway
1997	M.A. (j.o.)	University of Dublin, Trinity College

### Professional career:

2008-Present	<i>Head of School of Physics, Trinity College Dublin</i>
2007-2008	<i>Trinity College Board Member, Fellows Constituency</i>
2007-2008	<i>Chairman, Personnel and Appointments Committee, Trinity College Dublin</i>
2005-2008	<i>Director of Research, School of Physics, Trinity College Dublin</i>
2003-Present	<i>Associate Professor, School of Physics, Trinity College Dublin</i>
2000-2003,	<i>Senior Lecturer, Department of Physics, Trinity College Dublin</i>
1999-2002	<i>Course Director, Physics and Chemistry of Advanced Materials</i>
1993-2000,	<i>Lecturer, Department of Physics, Trinity College Dublin</i>
1989-1993	<i>Senior Research Officer, Optronics Ireland Research Centre, Trinity College Dublin</i>
1988-1989	<i>Postdoctoral Researcher, Max-Planck Institut für Festkörperforschung, Stuttgart, Germany</i>
1986-1988	<i>Research Fellow, Sherman Fairchild Laboratory, Lehigh University, Bethlehem, Pennsylvania, USA.</i>

**Research interests:**

*Photonic structures including:* Fiber Lasers and Amplifiers; Microcavity structures for nonlinear optical interactions; Tunable diode lasers based on slotted Fabry-Perot structures; Integrated laser and optical modulator structures; CdTe nanocrystals and nanowires as novel photon emitters; Single and coupled Microsphere resonators.

**Main publications: in past 5 years**

'Whispering Gallery Mode Emission from a Composite System of CdTe Nanocrystals and a Spherical Microcavity' *Semiconductor Science and Technology* 18 (2003) 914-918 [Yu.P. Rakovich, L. Yang, E.M. McCabe, **J. F. Donegan**, T. Perova, A. Moore, N. Gaponik and A.L. Rogach]

'Effect of ZnS shell thickness on the Raman spectra of CdSe quantum dots' *Physical Review B* 68 (2003) 165306 [A.V. Baranov, Yu.P. Rakovich, **J. F. Donegan**, T.S. Perova, R.A. Moore, D.V. Talapin, A.L. Rogach, Y. Masamoto and I. Nabiev]

'Fine structure of coupled modes in photonic molecules' *Physical Review A* 70 051801(R) (2004) [Y.P. Rakovich, **J.F. Donegan**, M. Gerlach, A.L. Bradley, T.M. Connolly, J.J. Boland, N. Gaponik, and A. L. Rogach]

'Anti-Stokes photoluminescence in semiconductor nanocrystals quantum dots' in "*Semiconductor Nanocrystal Quantum Dots*" ed. Andrey L. Rogach, Springer 2008, [Y.P. Rakovich, **J.F. Donegan**]

'Radiation-pressure-induced mode splitting in a spherical microcavity' *Optics Express* 15 (2007) 3597-3606 [M. Gerlach, Y.P. Rakovich and **J.F. Donegan**]

'The fabrication, fluorescence dynamics, and whispering gallery modes of novel microtube resonators' *Advanced Functional Materials* 17 (2007) 1106-1114 [Y.P. Rakovich, S. Balakrishnan, Y. Gun'ko, **J.F. Donegan**, T.S. Perova, and R.A. Moore]

'Aqueous Synthesis of Thiol-Capped CdTe Nanocrystals: State-of-the-Art' *Journal of Physical Chemistry C* 111 (2007) 14628-14637 Review Article [Andrey L. Rogach, Thomas Franzl, Thomas A. Klar, and Jochen Feldman, Nikolai Gaponik, Alexey Shavel, and Alexander Eychmüller, Yuri P. Rakovich and **John F. Donegan**]

'Non-Functionalized Nanocrystals Can Exploit a Cell's Active Transport Machinery Delivering Them to Specific Nuclear and Cytoplasmic Compartments' *NanoLetters* 7 (2007) 3452-3461 [Igor Nabiev, Siobhan Mitchell, Anthony Davies, Yvonne Williams, Dermot Kelleher, Richard Moore, Yurii K. Gun'ko, Stephen Byrne, Yury P. Rakovich, **John F. Donegan**, Alyona Sukhanova, Jennifer Conroy, David Cottell, Nikolai Gaponik, Andrey Rogach and Yuri Volkov]

'CdTe Nanowire Networks: Fast Self-Assembly in Solution, Internal Structure and Optical Properties' *Journal of Physical Chemistry C* 111 (2007) 18927-18931 [Yury P. Rakovich, Yuri Volkov, Sameer Sapra, Andrei S. Susha, Markus Döblinger, **John F. Donegan**, and Andrey L. Rogach]

'Nanojets and directional emission from symmetric photonic molecules' *Optics Express* 15 (2007) 17343-17350 [M. Gerlach, Y.P. Rakovich and **J.F. Donegan**]

'Influence of cavity lifetime on high-finesse microcavity two-photon absorption photodetectors' *IEEE Photonics Technology Letters* 19 (2007) 432-4 [W.H. Guo, J. O'Dowd, M. Lynch, A.L. Bradley, **J.F. Donegan**, and L.P. Barry]

'A novel two-section tunable discrete mode Fabry-Perot laser exhibiting nanosecond wavelength switching' *IEEE Journal of Quantum Electronics* 44 (2008) 331-337 [R. Phelan, W. H Guo, Q. Y Lu, D. Byrne, B. Roycroft, P. Lambkin, B. Corbett, F. Smyth, L.P. Barry, B. Kelly, J O'Gorman and J. F. Donegan]

'Two photon absorption generated by optically amplified signals' *Electronics Letters* 44 (2008) 1087-1088 [J. O'Dowd, D. C. Kilper, W. H. Guo, M. Lynch, A.L. Bradley, S. Chandrasekhar and **J. F. Donegan**]

'Polarization response of a semiconductor microcavity' *Optics Express* 16 (2008) 17682-17688 [J. O'Dowd, Wei-Hua Guo, E. Flood, M. Lynch, A.L. Bradley, **J.F. Donegan**, K. Bondarczuk, P. J. Maguire, D. Reid, L. P. Barry]

'A novel two-section tunable discrete mode Fabry-Perot laser exhibiting nanosecond wavelength switching' *IEEE Journal of Quantum Electronics* 44 (2008) 331-337 [R. Phelan, W. H Guo, Q. Y Lu, D. Byrne, B. Roycroft, P. Lambkin, B. Corbett, F. Smyth, L.P. Barry, B. Kelly, J O'Gorman and **J. F. Donegan**]

#### **Awards & Honors:**

- 1987 Chartered Physicist, Institute of Physics, London, UK
- 2000 Elected Fellow of Trinity College Dublin
- 2002 Fellow of Institute of Physics, London, UK
- 2005 Fellow of the Institute of Nanotechnology, London, UK
- 2008 Senior Member, Institute of Electronic and Electrical Engineering (IEEE), US