CURRICULUM VITAE

Kenneth A. Dawson

Name: Dawson, Kenneth A.
Grade: Professor and Chair of Physical Chemistry
Year of appointment at University College Dublin: 1992

Academic degrees (Institution and year of completion): BSc, (QUB) (1980); MSc Mathematics (QUB) (1981); DPhil (University of Oxford) (1984)

Positions held prior to University College Dublin: 1983-1984 Research Visitor, Institute Haute Etudes Scientific, Paris, 1983 Visiting Lecturer, Theoretical Chemistry, University of Ulm, West Germany 1984 Lindemann Fellow, 1986-1987 Associate Fellow in Atomic & Solid State Physics, 1986-1987 Materials Science Postdoctoral Fellow Cornell University, 1985-1988 Strategic User at the Cornell National Supercomputer Centre, 1987-1990 Assistant Professor of Chemistry, University of California, Berkeley 1989-1992 Adjunct Professor of Biophysics, University of California, Berkeley, 1989-present, Chair of Physical Chemistry, University College Dublin 1992-present, Executive Board Member of SEAM, Member RIA, ACS, APS.

Prizes Richardson Prize, Harrison Prize (RSC), IBM (two prizes, for chemistry and for distributed processing), Sloan Fellow (U.S.), Dreyfus Fellow (U.S.), Packard Fellow (International) Canon Professor (Japan), Cozzarelli Prize 2007 (U.S.)

Research Interests and Key Expertise:

- Quantitative bionanoscience, bionanointeractions, nanomedicine, nanosafety, nanodiagnostics
- Fundamentals (theoretical, simulation and experimental principles) of Soft Matter, Nanoparticle, colloidal and surface Science, particularly in relation to creation of organized structures and dynamically arrested systems.
- Interface between soft matter / dense colloidal system and biology, and biomaterials, bionanomaterials.
- Systems science, self-organized criticality, and advanced methods of computation

Present Research Oriented International Activity:

- Chair International Alliance for NanoEHS Harmonisation
- OECD / ISO Nanotechnology standards working group member
- Coordinator of the EU FP6 STREP project NanoInteract
- Coordinator of the EU FP7 Small Collaborative project, NeuroNano
- Executive Board of Centre of Excellence in La Sapienza, Complex Matter
- Editorial Board, Current Opinion in Colloid and Interface Science, Editor in chief of Physica A.

RECENT ACTIVITIES ON BOARDS

- Board of European Physical Society, Liquids 2002
- Board of STATPHYS 2001
- Board of Review (External), Department of Energy, Board of Review (External), National Institute of Health, Maryland, U.S.A.
- National Committee for Chemistry, Royal Irish Academy
- Member, Management Committee EU COST Action P1
- Founder Member of Council of Scientists of INTAS
- President of the European Colloid and Interface Society (2005-2008)

Some conference and seminar papers/talks:
NanoBioEurope2008, Barcelona, 9-13 2008; First International Workshop on Nanotechnology and Applications, Vietnam, 15-17 Nov ’07; Nanoparticles & Biocolloids - New Opportunities and Challenges for Colloid Scientists, RSC Conference, Warwick, UK, March 2007; Gordon Conference on Colloidal, Macromolecular &

Polyelectrolyte Solutions (Ventura, CA) key-note lecture (February 2006). XVIIth European Chemistry at Interfaces Conference, June 2005.

Research Outputs: 215 papers in theory, simulation, and experimental science in the field of soft matter, colloidal science; one patent in progress.

Current Research Grants:
Marie Curie Research Training Network on Dynamical Arrest, PI, 2004-2008, €4M, 0.8M to PI

SFI Research Frontiers Grant, PI, €220,000, 2005-2008. Arrested Matter
SFI Research Frontiers. CHP031. 2006-2009. €200,000. PI, Spatio-temporal aspects of nanoparticle interactions with cells.

EU - 6th Framework Programme, NMP Programme FP6-2004-NMP-TI-4, STREP NanoInteract, Number: 033231, 2006-2009 (total: 4M€, PI).

HEA PRTLI NanoBio Centre 2007-20011 €1.5M recurrent, €24M capital (matched by UCD)

SFI Strategic Research Cluster, €7.5M, 2008-2012, PI. BioNanoInteract.

EPA Project Grant, €350,000, Dec 2008- Dec 1010, PI, Visualisation and Quantification of the interaction of fluorescent nanoparticles with ecotoxicologically relevant species.

NSF-CEIN Centre in UCLA, $40, 2009-2013, Named Collaborator (no financial contribution).

EU FP7 Small Collaborative Research Program, 2008-2010. €3.5M NeuroNano.

Selected Publications:

- Dawson KA, Salvati A, Lynch I. Nanotoxicology: nanoparticles reconstruct lipids. Nat Nanotechnol. 2009 4, 84-85.
- Lundqvist, M., Stigler, J., Cedervall, T., Elia, G., Lynch I., Dawson K. Nanoparticle Size and Surface Properties determine the Protein Corona with possible implications for Biological Impacts. PNAS, 105, 14265-14270.
- Barnes, C.A., Elsaesser, A., Arkusz, J., Smok, A., Palus, J., Lesniak, A., Salvati, A., Hanrahan, J.P., de Jong, W.H., Dziubałtowska, E., Stępnik, M., Rydzyński, K., McKerr, G., Lynch, I., Dawson, K.A., Howard, C.V. Reproducible Comet Assay of amorphous silica nanoparticles detects no genotoxicity. 2008 Nano Letters, 8, 3069-3074.
- Lynch, I., Dawson K.A. Protein-nanoparticle interactions, NanoToday, 2008, 3, 40-47.
- Cedervall T, Lynch I, Lindman S, Berggård T, Thulin E, Nilsson, H, Linse S, Dawson KA. Understanding the nanoparticle protein corona using methods to quantify exchange rates and affinities of proteins for nanoparticles, PNAS, 2007, 104, 2050-2055.
- Cedervall T, Lynch I, Foy M, Berggård T, Donnelly SC, Cagney G, Linse S, Dawson KA, Detailed Identification of Plasma Proteins Adsorbed on Copolymer Nanoparticles, *Angew. Chem. Int. Ed.* 2007, 46, 5754 –5756.
- Linse S, Cabaleiro-Lago C, Xue W-F, Lynch I, Lindman S, Thulin E, Radford SE, Dawson KA, Nucleation of protein fibrillation by nanoparticles, PNAS, 2007, 104, 8691-8696.
- Allen LT, Tosetto M, Miller I, O'Connor D, Penney SC, Lynch I, Keenan AK, Pennington SR, Dawson KA, Gallagher WM, Surface induced changes in protein adsorption and implications for cell-surface response. Biomaterials, 2006, 27, 3096-3108.
- Allen, L.T., Fox, E.J, Blute, I., Kelly, Z.D., Rochev, Y., Keenan, A.K., Dawson, K.A., Gallagher, W.M., Interactions of soft condensed materials with living cells: phenotype/transcriptome correlations for the hydrophobic effect, Proc Natl Acad Sci U.S.A., 2003, 100, 6331-6336.
- Dawson, K. A., The glass paradigm for colloidal glasses, gels and other arrested states driven by attractive interactions, Current Opinion in Colloid and Interface Science, 2002, 7, 218.
- De Gregorio, P., Lawlor, A., Bradley, P., Dawson, K. A., First exact solution of a jamming transition, Proc Natl Acad Sci U.S.A., 2005, 102, 56669.