

DR SEAMUS A. CURRAN

QUALIFICATIONS

Trinity College, Dublin, Ireland

- 1995: PhD Experimental Physics
- 1992: BA Material Science

CAREER

- Director of the Institute for NanoEnergy (2009 – Current)
- Associate Professor, Physics Department at the University of Houston, (2007 – Current)
- Assistant Professor, Physics Department at New Mexico State University (NMSU), 2003 – 2007
- Adjunct Professor in Chemical Engineering at NMSU (2004 to date)
- Research Associate at Rensselaer's Nanotechnology Center (2002-2003)
- Co-founder and Director of Inspace (*an optoelectronics start-up company*) (2000-2001)
- Lecturer in the Department of Materials Science at Trinity College Dublin (1998-2000)
- NAMITECH European Research Fellowship (1997-2000)
- Monsanto Research Fellowship at MPI, Stuttgart (1996-1997)
- Postdoctoral Researcher at MPI, Stuttgart, Germany (1995-1997)

RESEARCH STATEMENT

Prof Curran's research program specializes in alternative energy, in particular *Optics* and *Nanocomposite Formation* using organic polymers (semiconductors and base plastics) as hosts and filler nanomaterials (nanotubes, fullerenes, nanowires and quantum dots); examining their scientific value as additions to, or replacements for, conventional energy generation sources. Core to this is developing an *understanding* of the *electronic*, *spectroscopic* and *morphological* properties of the constituents and composites. Evolving from that fundamental understanding is the application of nanocomposites across diverse energy generation areas. The electronic device formation from these composites resulted in the first group to break 5% efficiency in organic solar cells, the best emissivity performance in flat panel display technology and the highest recorded conductivity for composites.

RESEARCH ACCOMPLISHMENTS

- Published or submitted to date 70+ papers, 2 Patents granted, 15 patents applications (4 at UH) including 6 at PCT stage, while academic papers have been cited over **1,500** times

- Has made 1 plenary presentation, 10 invited presentations at international conferences, 6 presentations at international conferences, 20 university colloquia and presented at a further 23 meetings
- DOD and NSF sponsored organic photovoltaic program achieved efficiencies of over 5% (M. Reyes-Reyes *et al*, 'Meso-Structure Formation for Enhanced Organic Photovoltaic Cells', *Org. Lett.*; (Letter); 2005; 7(26); 5749-5752)
- DOD sponsored work on field emission featured by *Nature*, "Nanomaterials-Display of Flexibility" 441,7092, 414-415, (2006)
- Published the highly cited paper in polymer/nanotube composite (S.Curran *et al*, *Advanced Materials*, 10 (1998) 1091-1093) – *Cover Feature*

HONOURS AND AWARDS

- Included in NSF's 'best of the best' research nuggets for work done on organic photovoltaics (2005 – 2006)
- COMS 2006 ' Best paper award' (2006)
- 'New Mexico All Star in Micro and Nanotechnology' (2005)
- Represented the State of New Mexico as the scientific advisor for Governor Richardson's international trade mission to Japan for the 13 Nation Asia-Pacific Forum (2004)
- NAMITECH EU Scholarship for research at the CNRS, Nantes and Trinity College Dublin (1997-1999)
- Monsanto Scholarship while at the Max Planck Institute, Stuttgart (1996)

FUNDING

1. UH – PI: DOD-NRL: 'Carbon Composite thin films for power generation and energy storage', \$2,000,000 (2010 – 2013) (under review)
2. UH – Co-PI: DOE: National Wind Energy Center, \$2,350,000 (2009)
3. UH-Co-PI: DOE, 'Cascade Solar Cell Program', \$1,250,000 (2008-2010)
4. NMSU-PI: AFORSR-Dayton, 'Nanocomposite Coatings', \$75,000 (2006 – 2007)
5. NMSU-Co-PI: AFOSR, 'ARC Program', \$1,450,000 (2004 – 2007)
6. NMSU-Co-PI: NSF-EpSCOR 'NM Infrastructure Program', \$536,215 (2003 - 2005)