

DUBLIN CITY UNIVERSITY	First Name	Last Name	email	Institute	Address
PI name & contact details:	John F	Gallagher	John.gallagher@dcu.ie	DUBLIN CITY UNIVERSITY	Glasnevin, Dublin 9, Ireland.
School:	Chemical Sciences				
Research Centre/ group affiliation:	Synthesis and Structural Sciences				
Research group/ centre website:	http://www.dcu.ie http://doras.dcu.ie/view/people/Gallagher,_John_F=2E.html http://www.youtube.com/channel/UC9FOUhx_uqnj9uvObrcnmUQ/videos				

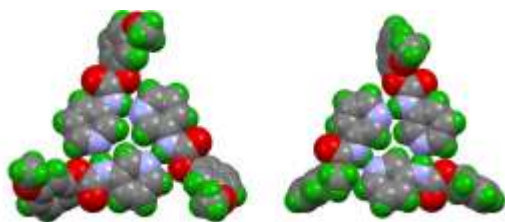
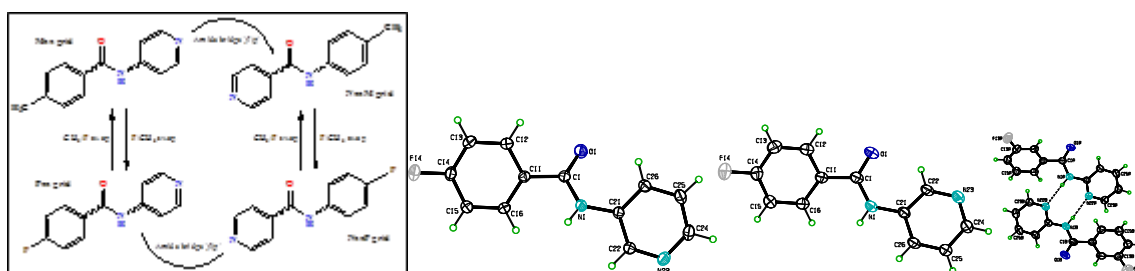
Brief summary of research group/ centre activity:

Solid-state pharmaceutical sciences; Polymorphism and Isomorphous relationships; Isomer grids; Synthesis, structural systematics and conformational analyses of benzamides and carboxamides; Polymorphism in pharmaceuticals; Supramolecular and Macrocyclic (Trezimides/Tennimides) chemistry using amide/imide linkers.

Description of postdoctoral project on offer:

Solid-state analysis of pharmaceuticals is a core area of basic and applied research. Our interest in benzamide and carbamate drugs stems from their importance as scaffolds in many common classes of pharmaceuticals and with potential uses in the agricultural industry as herbicides and pesticides. Our research is based on the systematic study of $n \times m$ isomer grids using a variety of spectroscopic and diffraction-based techniques to correlate physicochemical properties, investigate polymorphism and isomorphous behaviour. This project will be of interest to pharmaceutical scientists and organic/medicinal chemists. See for example our recent paper in *Crystal Growth and Design*: Pavle Mocilac and John F. Gallagher, 2013, *Cryst. Growth Des.*, 13, 5294-5304 and in *Acta Crystallographica Section B*: Pavle Mocilac and John F. Gallagher, 2012, *Acta Cryst.* B68, 189-203.

The $M_{xx}/N_{xx}M$ and $F_{xx}/N_{xx}F$ grids; Fpm polymorphs; Fmo hydrogen bonded dimer (below)



Trimeric aggregation in CmmOMe and CmoOMe; Mocilac & Gallagher, 2013, *Cryst Growth Des.*, 13, 5294-5304.

Please indicate the core skills or disciplines that are required for this position:

Skillssets for postdoctoral research: Synthetic organic and pharmaceutical chemistry expertise. Spectroscopy and especially 1H , ^{13}C , ^{19}F NMR, IR, UV-Vis and DSC/TGA expertise and knowledge. Chromatography and separations science experience. Crystallizations; Report and paper writing for International chemistry journals. See our recent paper: Structural systematics and conformational analyses of a 3×3 isomer grid of nine N-(tolyl)pyridine-carboxamides and three chlorinated relatives. P. Mocilac and J.F. Gallagher, *CrystEngComm*, 2011, 13, 5354-5366.