



Company: Archipelago Technology Group

Knowledge Transfer Partnership: Improve the operation of Archipelago's Powerdrop print engine and advance its coating capabilities for manufacture of products in industries including furniture and packaging.

Established in 2012, by Guy Newcombe, Archipelago is an ink jet technology company based in Cambridge, UK. Archipelago has developed its own proprietary technology, Powerdrop, for printing and coating applications. Powerdrop jets highly viscous fluids such as adhesives, paints, and functional coatings for a range of industrial applications. Powerdrop vastly improves transfer efficiency and reduces waste of coating materials in industry.

Challenge

As Archipelago develops the Powerdrop technology to expand its capabilities and extend their business reach into new industries, it is important to scope out and extend the range of fluids that can be jetted for the wide variety of potential industrial uses.

Archipelago was attracted to the Knowledge Transfer Partnership (KTP) programme to gain access to high-speed imaging equipment and academic expertise to carry out modelling work, imaging and data analysis that will help to understand the machine-fluid interface dynamics and optimize their jetting process.

That's where Queen Mary's expertise comes in to play.

Process to Solution

Prof J. Rafael Castrejon-Pita (Academic lead, now at UCL) has been active in the field of inkjet since 2006; he is currently co-leading the EPSRC Special Interest Group in Droplet dynamics. In his laboratory he combines instrumentation with various aspects of fluid mechanics, inkjet, and 3D printing manufacturing.

Dr Radomir Slavchov's (Academic Supervisor) field is colloids and interfaces; he has published on adsorption, surfactants, micellization, capillary phenomena, surface charge, with applications varying from fuel to food emulsions. He also has expertise in the automation of physico-chemical image analysis.

Dr Faisal Mansoor (KTP Research Associate) is based at Archipelago. He regularly uses the facilities at Queen Mary, and is guided by Radomir and Rafa through weekly meetings. Faisal transfers his knowledge through regular, internal mini-conferences at Archipelago.

Dedicated workshops and specialised instruments will allow the academic team to train Archipelago's staff in modern optical systems and lead to optimisation of Powerdrop coating machines to meet the needs of future clients.

Impact

The project will result in a better understanding of the Powerdrop ejection process, enabling coating machines to operate at greater speed. This will reduce

costs and generate a higher profit per system sold, making Archipelago's Powerdrop machinery more attractive to industry.



By pairing Queen Mary and Archipelago we have created a world class team that is addressing a major environmental and business need: the ability to coat paper to enable it to replace plastic in food packaging while retaining its recyclability. This will enable the replacement of plastic as a food packaging material with paper and so eliminate the consequences of plastic waste in the environment. The combination of Archipelago's inkjet expertise with Queen Mary's analytical and measurement capabilities is proving a real game changer in our development and roll out plan."



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Collaborate with us

