



DR BILLY PARTHIPAN

Project Manager

Email: projects@innotecuk.com

DR BOJAN BOSKOVIC

Exploitation and Dissemination Manager

Email: bojan.boskovic@cnt-ltd.co.uk

The objective of the **UltraMAT** project is to develop a novel generic technology for materials processing of fluid and semi fluid phases that are widespread in manufacturing e.g. in the welding and adhesive joining of components, the manufacture of bulk composite components, in traditional and PM (HIP).

The **UltraMAT** is a three-year project which started in March 2017

This project is supported by Innovate UK (Project Ref. 102802).

Innovate UK

UltraMAT Project Ref. 102802

Innovate UK is the UK's innovation agency

Innovate UK is the UK's innovation agency. It works with people, companies and partner organisations to find and drive the science and technology innovations that will grow the UK economy. For further information visit www.innovateuk.gov.uk



UltraMAT

Power ultrasound as a generic tool for micro/nanoscale processing of metals



OPEN DAY 2019 ANNOUNCEMENT

www.ultrammat.co.uk

Innovate UK

UltraMAT is an **Innovate UK** Project Ref. 102802

Power ultrasound as a generic tool for micro/nanoscale processing of metals

UltraMAT Open Day 2019

Cambridge 7th March 2019



The **UltraMAT** project is excited to announce its Open Day Workshop, which will be taking place in Cambridge. The workshop aims to bring together experts, developers and end-users, to discuss how to speed-up commercialisation of advance materials in sectors such as automotive and aerospace.

Date: **Thursday, 7th March 2019**

Venue: **Hughes Hall, Cambridge**

PARTNERS



This would be a fantastic opportunity to learn about the new developments of this project and meet the project partners.

Participation to this event is free, but **registration is required**. If you are interested in attending, please send an email requesting a registration form to: info@ultrammat.co.uk or info@cnt-ltd.co.uk

PARTNERS

BRUNEL INNOVATION CENTER (BIC): www.brunel.ac.uk/bic

CEDAR METALS LTD

CAMBRIDGE NANOMATERIALS TECHNOLOGY (CNT): LTD www.cnt-ltd.co.uk

CARRSWELDING: <http://carrswelding.co.uk>

KW SPECIAL PROJECTS: www.kwspecialprojects.com

NQUIRINGMINDS: <http://nquiringminds.com>

INNOTECUK: www.innotecuk.com

TISICS LTD: www.tisics.co.uk



UltraMAT

Power ultrasound as a generic tool for micro/nanoscale processing of metals

The project goal is a novel generic technology (**UltraMAT**) for materials processing of fluid and semi fluid phases that are widespread in manufacturing, e.g. in the welding and adhesive joining of components, the manufacture of bulk composite components and in traditional and PM (HIP).

The key purpose of **UltraMAT** is to enable production of manufactured components with step improvements in specific strength (yield/ fatigue/ impact) and modulus, fatigue life and thus lightweighting; driven by economic and environmental needs to reduce energy consumption and emissions in manufacture and transport. The enabling tool is power ultrasound with purpose shaped force fields for controlled movement and size creation of uniform nano structures to enable:

- (1) Production of homogeneously distributed and shaped nanoscale particulates, fibres or grains).
- (2) Enhancement of interlayer and filler-matrix adhesion bonds.

UltraMAT will be validated through the fabrication and testing of samples of a number of key structure/joint types of growing importance especially in aerospace or automotive bodies/engines: (i) Ti/Al fibre laminates, Ti/Al and laser welding. Homogenisation performance will be studied using graphene (G) and carbon nanotubes (CNT) because the strong agglomeration tendencies of G and NT is impeding their ability to realise commercially, components of ultra-high specific strength. In short pulse echo mode, **UltraMAT** will self-evaluate its performance on line aided by predictive big analytics.