

DRG Showcase Program

Presentation Timetable

1410	TBC	Prof. K Worden
1420	Structural Health Monitoring In the DRG	Dr. E. J. Cross
<p><i>Structural Health Monitoring (SHM) aims to allow online, automated assessment of a structure's condition to improve safety, reduce unnecessary downtime, and streamline the maintenance process. The DRG has seen success in implementing SHM algorithms, many of the DRG's techniques incorporate principles from both machine learning and engineering to tackle more challenging problems in SHM.</i></p>		
1430	Structural Control and Stability	Prof. N. Simms
<p><i>This talk gives a short overview of our research in 3 main areas: Semi-active structural control based upon semi-active dampers; passive structural modifications for application in machining, and the use of control concepts to understand unstable or self-excited vibrations such as machine tool chatter.</i></p>		
1440		Dr. J. Rongong
1515	Nonlinear Structural Dynamics Research at Sheffield	Prof. D. Wagg
<p><i>This talks describes some of the recent nonlinear structural dynamics research in the DRGat Sheffield, including a summary of the recently finished Engineering Nonlinearity programme grant, and a preview of the new DigiTwin and DyVirt projects.</i></p>		
1525	Acoustics Research in the DRG	Prof. K. Horoshenkov
<p><i>The ongoing acoustics related research in the DRG can be split roughly in three areas: (i) acoustic materials; (ii) acoustic sensors; (iii) sound propagation modelling. This research is funded by the EPSRC, Innovate UK and UK's Industry. The DRG also leads the EPSRC UK Acoustics Network.</i></p>		
1535	Laboratory for Verification and Validation	Dr. R. J. Barthorpe
<p><i>Rob will provide an overview of the Laboratory for Verification and Validation, a major new research facility led by the DRG. The facility is due for completion in early 2018 and will allow structural dynamic testing across a full spectrum of environmental conditions in a controlled laboratory environment. The research enabled by the facility builds on the existing strengths of the DRG with advances in techniques for model validation and uncertainty quantification being a central research goal.</i></p>		
1545	Announcement of Poster Competition Results	Prof. J. Haycock

Poster Presentations

Theme	Title	Name	Location
Structural Health Monitoring	A Non-Parametric Clustering Approach for Semi-Supervised SHM	Tim Rogers	A1
	Tool Wear Prediction through Classification	Chandula Wickramarachchi	A2
	SHM signals decomposition based on multiresolution and ADF test	Iason Iakovidis	A3
	A nonlinear cointegration approach with applications on SHM	Haichen Shi	A4
	Predicting geometric tolerance thresholds in a five-axis machining centre	Tim Rooker	A5
	Finding Informative Groups in Engineering Data	Lawrence Bull	A6
	Damage detection under operational loading conditions of an aircraft structure	Sharafiz Rahim	A7
	Acoustic emission localisation in wind turbine bearings	Ian Martinez Efremov	A8
	Convolutional Neural Networks for Automated Inspection	Tom Gibbons	B1
	Experimental and computational studies of nominally similar structures	Stuart Walker	B2
	Bayesian Compressive Sensing	Ramon Fuentes	B3
	Bayesian history matching for forward model-driven SHM	Paul Gardner	B4
Acoustics	Measuring the shape of a rough surface remotely using an optimised array of ultrasonic sensors	Giulio Dolcetti & Anton Krynkina	B5
	Planning Algorithms for Autonomous Robots in Water Pipeline Networks	Richard Molyneux	B6
	Electrospun Polymers as Acoustic Absorbers	Alastair Hurrell	B7
	A round robin test of the acoustical properties of porous media	Kirill Horoshenkov & F. Pompili	B8
Bio-mechanics	Analysis and quantification of dexterity of the upper limb through the characterisation of manipulability	Ulises Hernandez	C1
Damping	Design of adjustable Tuned Mass Dampers using elastomeric O-rings Analysis of stiffness and damping of the TMW particles	Ning Tang	C2
	Damping from fibrous and lamellar microstructures	Haval Asker	C3
	Damping behaviour of multi-strand bars system	Haval Asker	C4
	Modelling of combined stiff-soft damping material using effective bending moment method	Ameer Al-Juboory	C5
	Mechanical and microstructural behaviour of tangled metal wire devices	Kartick Chandrasekhar	C6
	The vibro-acoustic properties of epoxidised natural rubber (ENR)	Mahmud Seth A Rahim	C7
	Air Film Damper and Its Optimisation	Boyang Gao	C8



Grants	Prosperity Partnership	-	D1
	Dyvirt	-	D2
	DigiTwin	-	D3
Control	A general expression for the power absorbed by a system from multiple sources	Julian Gosliga	D4
	Semi-active inerters using magnetorheological fluid: a feasibility study	Matthew Tipuric	D5
	Combined Control Strategy: Tuned Inerter Damper and Base Isolation	Predaricka Deastra	D6
	Cartesian Compliance Parameter Optimisation for Industrial Serial Robots	Huseyin Celikag	D7
	Investigation of tuned inerter dampers for machining chatter suppression	Hakan Dogan	D8