



## Advanced Circuit Boards...it's all about the substrate.

### Event report .....

This IMAPS workshop covered all aspects of electronic circuit substrates and their applications. 40 people attended the workshop which took place on Wednesday 27<sup>th</sup> June 2018 at the National Physical Laboratory (NPL) in Teddington, South London on a sweltering hot summers day. Fortunately, the auditorium was air conditioned and the workshop was “refreshingly” cool.



The event was structured with four educational lectures in the morning and five case studies in the afternoon. The first morning lecture was by Steve Riches from Tribus-D who covered the basics of electronic substrate selection and design. Jim Francey from Optiprint talked about organic PCB choices and particularly covered high frequency PCB selection. Bob Hunt and Mark Thorne then delivered a presentation on ceramic substrates and their applications. This sparked some discussions about whether automotive manufacturers would ever achieve sufficient reliability for safety critical automotive modules without ceramic substrates. Piers Tremlett from Microsemi finished the morning session of with a look at future substrates with some help from the Oracle at Delphi.



The afternoon session began with a description of the use of silicon substrate for thin film components and integrated passive networks by Olivier Gaborieau from Murata. Dominik Pawlik from Rogers Corp., then discussed busbar systems as substrates for high power applications. The early afternoon session was finished by Simon Johnson from CPI presenting a reel to reel printed substrate case study.

After the mid-afternoon coffee break, Anne Vanhoestenberghe provided a presentation on HTCC substrates for implanted medical devices. The challenge was to manufacture small quantities and be able to change designs readily with the equipment available at the University. A special thanks to Anne for stepping in to cover another speaker who dropped out at the last moment. The final talk was given by Darren Cadman from Loughborough University who described the use of additive manufacturing techniques to make composite 3D microwave structures.



Finally, thanks to Martin Wickham and the NPL who provided an excellent venue for a successful IMAPS workshop.