



Amit KUMAR HALDAR

Technology Centre: IMR - Irish Manufacturing Research
Academic Mentor: Dr Anthony Comer
Company Partner: Ventac
Company Mentor: Mark Simms

Amit completed his Master's degree in Mechanical engineering at Indian Institute of Technology Guwahati (IIT Guwahati), India, in 2010. He completed his PhD at the University of Liverpool, United Kingdom. Amit has developed novel contoured core structures to obtain air ventilation within a closed composite design to reduce the danger of deterioration and humidity retraction during his doctoral studies. His recent research focuses on the mechanical properties of polymer composites manufactured by a variety of methods, including hot compression liquid resin infusion and 3D printing.

Dr Anthony Comer

Anthony joined the Irish Composites Centre hosted by UL in 2009, to work on polymer composite materials, after previously working in the Structural Dynamics Group at the University of Oxford. Since becoming a lecturer at the School of Engineering in 2014, Anthony has led various projects at UL including the EU funded projects FIBRESHIP and FIBREGY which aim to increase the usage of polymer composite materials in large marine vessels and offshore renewable energy structures respectively.

Mark Simms

Mark Simms is the R&D Director at Ventac and has worked in acoustics and vehicle noise control for 13 years. Mark holds professional qualifications in Applied Acoustics from the University of Derby and Acoustics and Noise Control from the Institute of Acoustics. As R&D Director Mark is responsible for providing technical acoustic knowledge and for conducting relevant acoustic tests at the Ventac laboratory facilities and vehicle noise assessments at OEM sites. To develop new and advanced test capabilities and conduct innovative acoustic research into new products and materials.

University of Limerick

Amit is hosted by the Bernal Institute at the University of Limerick (UL). The UL has a strong track record in composites research. Composite researchers at UL have worked with almost every major aerospace company in Europe on more than 35 funded research projects, including 14 funded by the European Union. Hence, UL has an excellent suite of composite processing, testing and analysis equipment. The composite processing suite, hosted in the Bernal Institute, has a unique capability for composite processing in Ireland (large autoclave, resin transfer moulding, hot drape former etc.).

Ventac is an award-winning Irish company based just outside Dublin in Blessington Co. Wicklow. Ventac has been in business since 1972, working with international clients to provide high-performance acoustic solutions across the vehicle and industrial noise control sectors. Ventac has an expert research and development team to develop a high performance and superior acoustic solution. The company has a number of collaborative research projects with third-level universities and technology centres around Ireland.

Amit's project

“Development of novel lightweight super structure to avoid problems associated with noise insulation and humidity retention”

There is constant pressure on the automotive, aerospace and naval industries to come up with lightweight structural solutions to improve fuel efficiency without sacrificing the structural performance of components. The increasing use of composite structures in commercial vehicles has brought about a reduction in weight and fuel consumption but, on the other hand, has significantly increased noise transmission particularly in the case of thin and lightweight structures. Noise is a primary issue for commercial vehicles, such as aeroplanes, high-speed trains and cars.

The transmission of noise and vibration through the roof and sides of composite vehicle body walls can be reduced by introducing a noise isolating sandwich structure inside the vehicle body walls. The present research deals with the design of the sandwich structure and the use of smart materials to improve the sound insulation properties of the commercial vehicle.