

Seminar im Rahmen des GRK 2078

Referee: **APL Prof. Dr.-Ing. Ute Rabe**
Chair of Lightweight Systems, Fraunhofer IZFP, Saarbrücken, Germany

Date: Monday, September 24, 2018
Time: 14:00h

Location: Bldg. 10.23, 3rd Floor, Room 308.1

Title: **Ultrasonic testing of fiber reinforced plastic materials**

Abstract

Carbon and glass fiber reinforced plastic materials (CFRP and GFRP) are important lightweight construction materials. They are increasingly applied in safety-related structures in aviation, wind energy, automotive or other sectors. Ultrasonic testing is well established for quality assurance of such composites. This lecture will first highlight some aspects of the current state-of-the art, main challenges and open questions regarding ultrasonic testing of FRP. In addition ultrasonic methods for porosity determination will be discussed. Porosity is one of main quality parameters of CRFP especially in aviation. The state-of-the art technique exploits the amplitude of the back wall echo or the amplitude of transmitted ultrasonic pulses. However, this method comes to its limits in cases when no back wall echo is detected because of sample thickness, high absorption or other reasons, or when only single sided access to the component is possible. As will be shown, a significant improvement in porosity assessment of CFRP can be achieved by evaluation of the amplitude and phase of the back-scattered ultrasonic signals.

All interested listeners are cordially invited to join the audience.

Prof. Dr.-Ing. Thomas Böhlke
(Speaker of GRK 2078)