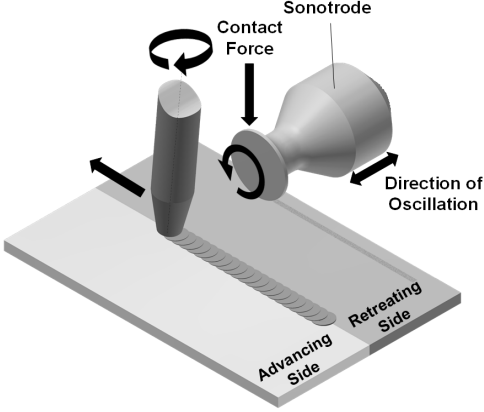


Assignment of a Topic for a Master's Thesis

Topic:	Study of intense plastic deformation zones formed after friction stir welding of AA6082 alloy and their impact on weld quality
Content:	<p>Description:</p> <p>The Friction Stir Welding process is a solid-state welding technique based on deformation bonding. It uses a non-consumable tool consisting of a specially designed probe and shoulder. The work will be focused on studying the intense plastic deformation zones formed during the ultrasonic-enhanced friction stir welding (USE-FSW) process of AA6082 aluminum alloy. The study aims to investigate the formation and characteristics of these highly deformed zones to determine how much they affect the quality and mechanical properties of the weld.</p>  <p>Tasks</p> <ul style="list-style-type: none"> - Literature review on the state of the art - Optimization of the test setup - Conducting conventional friction stir welding experiments - Conducting ultrasonic-enhanced friction stir welding experiments - Performing sample preparation and microscopic investigations after welding - Characterization of microstructure, surface composition of the samples - Describing the deformed zones after ultrasonic-enhanced friction stir welding <p>The thesis language is English, therefore good language skills as well as the ability to write and present thesis results in English is necessary</p>
Requirements:	<ul style="list-style-type: none"> - Students with completed Bachelor's degree in Mechanical Engineering, Materials Science or related fields - Good knowledge of materials science and joining technologies as well as statistical evaluation methods and analysis - Knowledge of materials characterization methods with hands-on experience will be an advantage - Good English skills are required <p>Please submit your complete application documents (cover letter, CV, certificates) by email.</p>
Contact:	<p>Marat Rebrin, M.Sc.</p> <p>Professur Verbundwerkstoffe und Werkstoffverbunde</p> <p>E-Mail: marat.rebrin@mb.tu-chemnitz.de</p>