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| Nota di contenuto | Cover; Title Page; Copyright Page; Contents; Preface; Part 1: Laser Surface Treatment/Modification to Enhance Adhesion; 1 Nd:YAG Laser Surface Treatment of Various Materials to Enhance Adhesion; 1.1 Introduction; 1.1.1 Surface Pretreatment for Adhesive Bonding; 1.1.2 Pretreatment Processes - State of the Art; 1.1.3 Solid State Nd:YAG Laser; 1.1.4 The Aim of the Current Research; 1.2 Methodology; 1.3 Experimental; 1.3.1 Materials; 1.3.2 Laser Parameters; 1.3.3 Visual Observation; 1.3.4 SEM Observation of Treated Surfaces; 1.3.5 XPS; 1.3.6 Contact Angle; 1.3.7 FTIR; 1.3.8 Joint Strength<br>1.3.8.1 Shear Strength of Joints1.3.8.2 Tensile Strength of Joints; 1.4 Results; 1.4.1 Polypropylene (PP); 1.4.1.1 Contact Angle; 1.4.1.2 FTIR Results; 1.4.1.3 Joint Strength Measurements; 1.4.2 Aluminum (2024 T3); 1.4.2.1 Contact Angle; 1.4.2.2 FTIR Results; 1.4.2.3 Joint Strength Measurements; 1.4.3 Polyimide (Kapton); 1.4.3.1 Contact Angle; 1.4.3.2 FTIR Results; 1.4.3.3 Joint Strength Measurements; 1.4.4 Open Time; 1.4.5 Silicone Rubber; 1.4.5.1 Contact Angle; 1.4.5.2 FTIR |

Results; 1.4.5.3 Joint Strengths Measurements; 1.5 Conclusions; References
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2.3.3 Mechanism of Ultrasonic Welding and Structure Development at Semicrystalline Interface2.3.4 Modeling of Ultrasonic Welding; 2.3.5 Minimum Flow Velocity; 2.3.6 Energy Directors; 2.3.7 The Effect of Pressure Control; 2.3.8 The Effect of Ultrasonic Amplitude; 2.3.9 The Effect of Trigger Pressure; 2.3.10 The Effect of Weld Time; 2.3.11 The Effect of Horn Down Speed; 2.3.12 Ultrasonic Weldability of Thermoplastics; 2.4 Experimental Procedures; 2.4.1 Sample Preparation; 2.4.1.1 Materials; 2.4.1.2 Injection Molding; 2.4.1.3 Preparation of Samples for Laser treatment and Welding Experiments
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2.5.2.5 The Effect of Laser Pulse Frequency on Weld Strength of PS and ABS

Sommario/riassunto

"The book provides a unique overview on laser techniques and applications for the purpose of improving adhesion by altering surface chemistry and topography/morphology of the substrate. It details laser surface modification techniques for a wide range of industrially relevant materials (plastics, metals, ceramics, composites) with the aim to improve and enhance their adhesion to other materials. The joining of different materials is of critical importance in the fabrication of many and varied products"--