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Nota di contenuto	Introduction -- State of the Art -- Mechanical Testing -- Statistical Analysis -- Material Modeling -- Numerical Results -- Summary and Outlook -- Bibliograph -- List of symbols -- Appendix.
Sommario/riassunto	A method for incorporating and comparing stochastic scatter of macroscopic parameters in crash simulations is developed in the present work and applied on a 30 wt.% short glass fiber reinforced polypropylene. Therefore, a statistical testing plan on the basis of three point bending tests with 30 samples for each configuration is carried out. The tests are conducted at 0°, 30°, 45° and 90° orientation angles and at strain rates of 0.021/s and 85/s. The obtained results are

evaluated statistically by means of probability distribution functions. An orthotropic elastic plastic material model is utilized for the numerical investigations. Monte Carlo Simulations with variations in macroscopic parameters are run to emulate the stochastic rupture behavior of the experiments. The author Nikolai Sygusch was Research Associate at the Institute of Mechanics and Materials, Working Group Kolling, TH Mittelhessen, Gießen and has been a Ph.D. student from 2015 until 2018 at the crash simulation at Opel Automobile GmbH, Rüsselsheim am Main.
