Stress–Strength Reliability Analysis for Different Distributions Using Progressive Type-II Censoring with Binomial Removal		
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Abstract: This study focuses on stress-strength reliability, denoted as $\delta = P(W < V)$, where V and W represent strength and stress random variables, respectively, and δ is the reliability parameter. Using Type-II progressive censoring with binomial removal, the study examines the inference of δ for a system with V (strength) and W (stress) assumed to follow the Burr XII and Burr III distributions, respectively, with a common shape parameter. The maximum likelihood estimator (MLE) of δ is derived, along with the Bayes estimator using independent gamma priors. The Bayes estimates under squared error and linear exponential loss functions are computed via the Metropolis-Hastings method. Simulations compare the estimators using two metrics—average of estimates and root mean squared errors. The method is also applied to real-world data on breakdown times of insulating fluid under varying voltages.