

## 一类二元相关威布尔分布的可靠性问题

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**摘要** 本文考虑生存函数为  $\{F(x_1, x_2)\} = \exp\{-[(x_1^{1/\alpha})/\theta_1]^{1/\delta} + (x_2^{1/\alpha})/\theta_2]^{1/\delta}\}$ ,  $x_i > 0, \alpha > 0, 1 \leq \delta < \infty, \theta_i > 0 (i = 1, 2)$  的二元威布尔分布的两种可靠性问题, 提出可靠度  $\{pr\}$  的估计并讨论了它们的渐近性, 最后还作了模拟计算.

**关键词** [二元威布尔分布](#), [可靠度](#), [渐近性质](#), [应力-强度结构模型](#), [模拟计算](#).

分类号

## Estimation of Structural Reliability Relative to a Dependent Bivariate Weibull Distribution

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**Abstract** Consider a dependent bivariate distribution whose reliability function is  $\{F(x_1, x_2)\} = \exp\{-[(x_1^{1/\alpha})/\theta_1]^{1/\delta} + (x_2^{1/\alpha})/\theta_2]^{1/\delta}\}$ ,  $x_i > 0, \alpha > 0, 1 \leq \delta < \infty, \theta_i > 0 (i = 1, 2)$ . Two kinds of stress-strength model are discussed respectively. Moment-type estimators of structural reliability for those models are proposed and their asymptotic properties are discussed. At last, a simulation result is given.

**Key words** [Bivariate Weibull distribution](#), [reliability](#), [asymptotic property](#), [stress-strength structural model](#), [simulation](#).

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