New Goodness-of-Fit tests for the Weibull distribution

Adrian Fischer

October 18, 2022 - 14:30

Abstract

In this talk, we present novel goodness-of-fit tests for the Weibull distribution with unknown parameters. These tests are based on an alternative characterizing representation of the Laplace transform related to the density approach in the context of Stein's method. Asymptotic theory of the tests is derived, including the limit null distribution, the behaviour under contiguous alternatives, the validity of the parametric bootstrap procedure, and consistency of the tests against a large class of alternatives. A Monte Carlo simulation study shows the competitiveness of the new procedure. Finally, the procedure is applied to real data examples taken from the materials science.