

PROBABILISTIC AND INFERENTIAL ASPECTS OF SKEW-SYMMETRIC MODELS
SPECIAL ISSUE: “IV INTERNATIONAL WORKSHOP IN HONOUR OF ADELCHI
AZZALINI’S 60TH BIRTHDAY”

A message from the Guest Editors

In May 2011, the IV Skew Workshop entitled “Probabilistic and Inferential Aspects of Skew-Symmetric Models” was organized at the Pontificia Universidad Católica de Chile in Santiago. The meeting was dedicated to Professor Adelchi Azzalini, the pioneer of the field of skew-symmetric models, to honour his many contributions to this area of research and to Statistics in general, as well as to celebrate his 60th birthday!

All participants of this event were invited to submit a paper to a special issue of the Chilean Journal of Statistics. Although the submissions were not restricted to participants of the meeting, six of the seven papers published in this special issue have at least one coauthor who attended the IV Skew Workshop. We are grateful to the authors for submitting high quality articles that led to this special issue.

The first paper is a delightful historical article where Azzalini and Regoli present the pioneering work of Fernando de Helguero who in 1908 was a precursor of the current idea of skew-symmetric distributions. The authors start with a review of the life and scientific profile of this very active young Italian statistician. Unfortunately, his life was short and he died at the age of 28. The rest of the paper focuses on two papers in which de Helguero developed an innovative formulation to build non-normal distributions.

The next two papers deal with very interesting applications of skew-symmetric models. Hernández-Sánchez and Scarpa consider a flexible skew-symmetric circular distribution to model wind directions. Prates, Dey and Lachos present a novel spatial process using generalized skew-normal/independent distributions applied to a Dengue fever study.

The special issue continues with two important discussions about existence and identifiability of certain skewed spatial processes. Minozzo and Ferracuti show, through counterexamples, some problems with the characterization of certain spatial skew-normal stationary stochastic processes recently proposed in the literature. Genton and Zhang describe identifiability problems that arise with some extensions of Gaussian spatial random fields to skew-Gaussian fields and suggest some remedies.

Hypothesis testing in graphical models under an extended skew-normal distribution is discussed by Pacillo. She derives a test for a single edge exclusion/inclusion based on a Wald-type statistic. Finally, Arellano-Valle and Richter focus on extending the class of skewed distributions using, as an underlying distribution, a $l_{n,p}$ -norm symmetric one. The authors exploit stochastic representations based on the uniform distribution under a p -generalized unit sphere to obtain marginal and conditional distributions.

We thank Reinaldo Arellano-Valle, the Editor-in-Chief of the Chilean Journal of Statistics, for trusting us with the task of organizing this special issue. We are also deeply indebted to Victor Leiva, the Executive Editor, for all his help and support during this process.

We hope you enjoy reading this special issue as much as we enjoyed working on its preparation!

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