

# Robert Féron

A Pioneer in Soft Methods  
for Probability and Statistics



San Diego, 1978

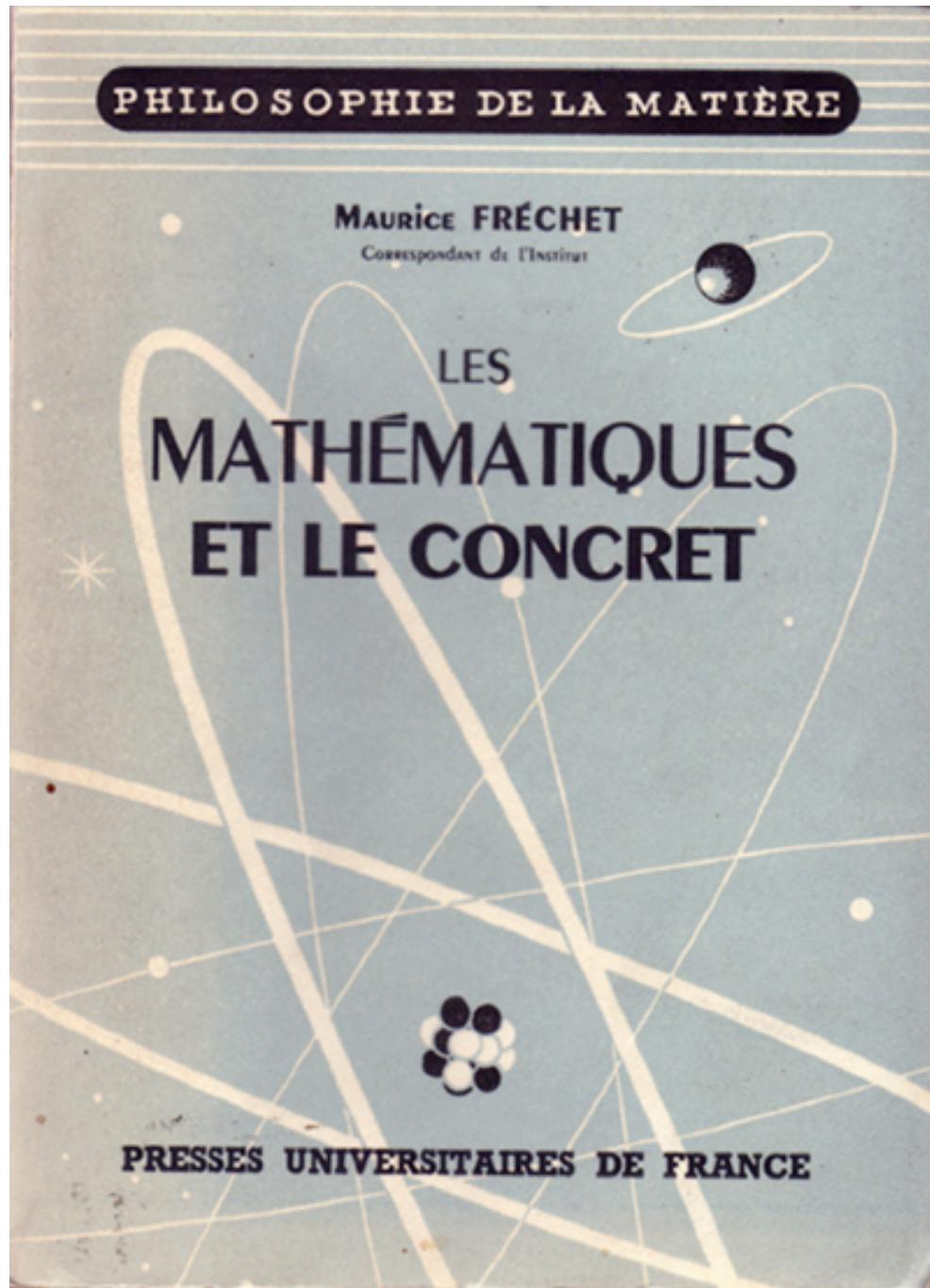
Robert Féron, born in 1921

- Thesis (Doctorat es Sciences) **1954**  
« Information, Régression, Corrélation »
- Committee chair: Maurice Fréchet  
Examiners: Robert Fortet (1912-1998)  
Daniel Dugué (1912-1987)
- CNRS researcher, **1945-1958**  
University Professor, Lyon, **1958-1986**



Maurice Fréchet 1878- 1973

- Information gain in a probabilistic setting
- Probabilistic model of regression
- Unifying view of previous works on correlation
- Generalization of metric spaces  
(«Espaces à écart de Fréchet», CRAS, 1966)
- Topological spaces (weakening of Kuratowski's axioms)



1955

R. Féron launched in Lyon  
a research group  
in **econometrics** in the sixties

« .., a *generalization* of the theory of random sets with closed values has suggested us a generalization of the notion of random set and a theory that enables us to draw conclusions still in the case where we have a **random fuzzy set**. The *engineer* has thus a *powerful mathematical tool* for dealing with other structures than random fields, since ... » R. Féron, 1979

- **Random fuzzy set**
- Application to *mathematical economy*:  
*coalitions* viewed as random fuzzy sets
- *Distance and deviation* in a fuzzy structure
- *Pre-uniform* fuzzy structures
- Application to evaluation of industrial products  
(FSS paper with his son Marc, 1988)

# 1976

- Ensembles aléatoires flous. CRAS, 282, 1976, 903-906
  - Economie d'échange aléatoire floue.  
CRAS, 282, 1976, 1379-1382

*J.-P. Aubin* Cœur et valeur des jeux flous à/sans paiements latéraux.  
CRAS, 279, 1974, 891-894/ 963-966.

*R. Fortet, M. Kambouzia* Ensembles aléatoires et ensembles flous.  
*Publications Econométriques*, 9 (1), 1976.

*C. Ponsard* Contribution à une théorie des espaces économiques imprécis.  
*Publications Econométriques*, 8 (2), 1975.

*A. Kaufmann* Introduction to the Theory of Fuzzy Subsets. Acad. Press 1975  
*D. Ponasse* Algèbres floues et algèbres de Lukasiewicz.  
Rev. Roum. Math. Pures & Appl. 1978

*E. Sanchez* Resolution of composite fuzzy relation equations. Inf. Cont. 1976

Broad understanding of the directions  
in which fuzzy sets should be developed

**CNRS Round Table: "Quelques applications concrètes utilisant  
les derniers perfectionnements de la théorie du flou"**

"Some concrete applications using the  
most recent advances in fuzzy theory »

*Organization committee* (Lyon, January 25, 1980)

J. Kampé de Fériet, R. Fortet

but also Professor *Gustave Choquet* (1915-2006)

(together with several much younger fuzzy set researchers)

at a time where nobody had still a clear view of the interest  
of Choquet capacities and integrals in relation with fuzzy sets !

## **CNRS Round Table**

Lyon, June 23-24, 1980

participants *included*:

J. P. Auray, B. Bouchon, M. Brissaud, C. Carlsson, D. Dubois,  
G. Duru, B. Dubuisson, A. Dussauchoy, H. Emptoz, S. Gottwald,  
A. Kaufmann, J. Kampé de Fériet, E. P. Klement, A. Kandel,  
M. Lamure, R. Lopez de Mantaras, R. Lowen,  
N. Malvache, C. Negoita, H. Nguyen, S. Oppenchain, H. Prade,  
D. Ponasse, M. Prévot, D. Ralescu, E. Ruspini, E. Sanchez,  
P. Smets, R. Vallée, D. Willeys, L. Zadeh, H. Zimmermann



*Int. Cong. Applied Systems Research & Cybernetics Acapulco Dec.1980*

Robert Féron deserves our deep respect and appreciation for his pioneering work !

For more details, see:

- paper in the proceedings

« Robert Féron, A Pioneer in Soft Methods for Probability and Statistics » (J.-P. Auray, H. Prade) and

- Féron's 1981 own paper:

« Probabilistic and statistical study of random fuzzy sets whose referential is  $\mathbf{R}^N$  »