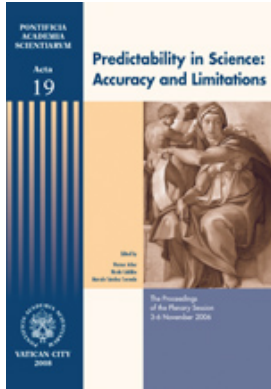




## Predictability in Science: Accuracy and Limitations



Plenary Session 3-6 November 2006

W. Arber, N. Cabibbo, M. Sánchez Sorondo (eds)

*Acta 19*

Vatican City, 2008

pp. XLII-277

ISBN 978-88-7761-094-2

### SESSION I – CHAOS AND PREDICTIONS IN PHYSICS AND ASTRONOMY

#### **Predictions in Astrophysics and Cosmology (PDF)**

Rudolf Muradian

#### **Complexity and Predictions at the Fundamental Level of Scientific Knowledge (PDF)**

Antonino Zichichi

### SESSION II – GEOSCIENCES AND ENVIRONMENTAL EVOLUTION

#### **Change of Scaling Before Extreme Events in Complex Systems (PDF)**

Vladimir Keilis-Borok, Alexandre Soloviev, Andrei Gabrielov, Ilia Zaliapin

#### **Global Warming Science: Predictions, Surprises and Uncertainties (PDF)**

Veerabhadran Ramanathan

#### **Predictability of Science and Climate Change (PDF)**

Mario J. Molina

#### **An Example of Geo-Engineering: Cooling Down Earth's Climate by Sulfur Emissions in the Stratosphere (PDF)**

Paul J. Crutzen

### SESSION III – PREDICTIONS IN THE LIFE SCIENCES

#### **Predicting the Minimal Sustainable Genome (PDF)**

Rafael Vicun#a

#### **The New Possibilities of Prediction and Prevention of Cancer (PDF)**

Umberto Veronesi

#### **Stochastic Genetic Variations and their Role in Biological Evolution (PDF)**

Werner Arber

### SESSION IV – PHILOSOPHICAL AND SOCIETAL ASPECTS

#### **Epistemological Study of the Vocabulary of Prediction in Science and Theology (PDF)**

Jean-Michel Maldame#

#### **Predictability, Measurements and Cosmic Time (PDF)**

Michael Heller

#### **Predictability, Determinism, and Emergence (PDF)**

Ju#rgen Mittelstrass

**Predictability: Prophecy, Prognosis and Prediction. A Study in Neuroeducation** (PDF)

Antonio M. Battro

SESSION V – RESEARCH PROCEDURES: THEORIES AND THEIR VERIFICATION, SERENDIPITY

**On the Unpredictability of Individual Research** (PDF)

Michael Sela

**Science as Prediction and the Unpredictability of Science** (PDF)

Stanley L. Jaki

SESSION VI – PUBLIC PERCEPTION AND POLICY IN THE CONTEXT OF UNCERTAINTY

**Some Issues Relating to Predictability and Certainty in Science** (PDF)

M. Govind Kumar Menon

**Chaos in Self-Exciting Dynamos and the Main Geomagnetic Field** (PDF)

Raymond Hide