

STUDY OF THE PRESENT PROBLEMS OF THE SCIENTIFIC INFORMATION PROCESSING AND TRANSMISSION

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Rezumat. Pentru a evalua calitatea informației, această lucrare își propune să indice criteriile pentru studiul compatibilității a) informației cu parametrii fizici reali; b) diferitelor corelații (și a modelelor lor teoretice) cu datele experimentale. Au fost de asemenea studiate posibilitățile evaluării riscului de eroare la respingerea compatibilității cu datele experimentale, ca și trăsăturile fundamentale ale transmisiei informației (de exemplu clopotele de rezonanță etc.). Este insistent subliniată necesitatea folosirii procedurilor matematice riguroase, atât ale Analizei numerice cât și ale Statisticii matematice.

Abstract. In order to evaluate the quality of the information, this work aims to point out some criteria for the study of the compatibility of: a) information with the true physical parameters, b) different correlation (and of their corresponding theoretical models) with the experimental data. The possibilities to evaluate the error risk to the rejection of the compatibility with the experimental data, as well as the basic features of the information transmission (i.e. resonance bells, etc) were also studied. The necessity to use both the rigorous mathematical procedures of the Numerical Analysis and of the Mathematical Statistics is strongly underlined.

Keywords: Mathematical Analysis, Data Processing, Numerical Physics, Mathematical Statistics, Numerical Methods

1. Introduction

The field of Sciences presents an extremely fast development. According to the published data of the *Institute for Scientific Information (ISI, Philadelphia – US)*, only the number of Physics papers published and indexed in the interval 1981-1996 was of about 77350 ISI indexed works/year, being frequently necessary the use of indices formed by 4 figures and a letter (e.g. the symbol 4281W corresponds to the field of *optical fiber sensors; fiber gyros*).

For this reason: a) there intervene sometimes certain errors (as those in the cases of: (i) “anomalous” [1], or of the: (ii) assumed nuclear fusion at low temperatures (starting from some palladium compounds), b) some important works (from the

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