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STUDY OF THE PHYSICS TEACHING AND RESEARCH IN THE TECHNICAL UNIVERSITIES

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Rezumat. *Pornind de la constatarea evoluţiei Fizicii (reieşind din principalele rezultate obţinute în cadrul premiilor Nobel pentru Fizică), această lucrare studiază posibilităţile de: a) optimizare a alegerii temelor de bază ale Fizicii predate în Universităţile tehnice, b) efectuare a unor cercetări ştiinţifice de valoare în cadrul celor mai bune Universităţi naţionale (BNU) care n-au obţinut premii Nobel pentru Fizică, c) obţinere a unor rezultate complementare utile (raportate la rezultatele obţinute în cadrul "curentului de bază" al Fizicii) prin studiile ştiinţifice BNU ale unor teme pentru care s-au acordat premii Nobel, d) îmbunătăţire a tehnologiilor didactice, pentru mai buna pregătire în domeniul Fizicii a viitorilor ingineri.*

Abstract. *Starting from the Physics evolution (as described by the main results obtained in frame of the Physics Nobel prizes), this work studies the possibilities: a) to optimise the choice of the basic Physics topics taught in frame of technical Universities, b) of valuable scientific research accomplished in frame of the best Universities (BNU) that didn't obtained Physics Nobel prizes, c) of obtainment of some useful complementary results (relative to the basic results obtained by the Physics mainstream) of the BNU scientific studies accomplished in the frame of some scientific fields with awarded Physics Nobel prizes, d) of improvement of the didactic technologies, for a better Physics training of the future engineers.*

Key words: Physics evolution, Main results obtained by the works awarded with Physics Nobel prizes, Evolution on decades and countries of the number of awarded Physics Nobel prizes, Improvement of didactic technologies

1. Introduction

The important Physics applications in technical sciences, biology, medicine, etc. are very well known. Despite of these well-known facts, there is a tendency in the technical academic education to reduce at minimum the Physics teaching and knowledge of students, of the undergraduate cycle, especially. E.g. the academic requirements of the speciality organisations SEFI and CESAER of the European Union [1] for the undergraduate studies (3 years) of all technical faculties stop after the statement "Explain the principles of electric and magnetic fields and apply the basic laws of electric circuits", with the unique additional element "Explain the basic principles of quantum theory". This trend is not a new one: see

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