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Nota di contenuto	pt. I. Invited lectures. 1. Exotic nuclei. Research on neutron clusters / F. M. Marques. Neutron transfer studied with a radioactive beam of [symbol]Ne, using TIARA at SPIRAL / W. Catford et al. for the TIARA collaboration. Rare Isotopes INvestigations at GSI (RISING) using relativistic ion beams / J. Jolie et al. Mass formula from normal to hypernuclei / C. Samanta. 2. Exotic nuclear structures. Exotic phenomena in medium mass nuclei / A. Petrovici. NUSTAR at FAIR. Nuclear structure research at GSI and the future / G. Muenzenberg. From super-radiance to continuum shell model / V. Zelevinski. New methods for the exact solution of the nuclear eigenvalue problem beyond mean field approaches / F. Andreozzi, N. Lo Iudice and A. Porrino. Q-phonon approach for low-lying 1[symnol] two-phonon states in spherical nuclei / R. V. Jolos, N. Yu. Shirikova and V. V. Voronov. Analytic description of the phase transition from octupole

deformation to octupole vibrations / D. Bonatsos ... [et al.]. Three-body models in nuclear physics / P. Descouvemont. Properties of low-lying states: shape parameters and proton-neutron symmetry / V. Werner. Shell model nuclear level densities / M. Horoi. 3. Exotic decays, clusters and superheavy nuclei. Nuclear structure and double beta decay / J. Suhonen. Systematics of proton emission / D. S. Delion. R. J. Liotta and R. Wyss. Synthesis of superheavy elements at SHIP / S. Hofmann et al. Synthesis of heaviest elements using a gas-filled recoil separator at RIKEN / K. Morita. Fission valleys and heavy ion decay modes / D. N. Poenaru, R. A. Gherghescu and W. Greiner. Dynamics of mass asymmetry in dinuclear systems / G. G. Adamian, ... W. Scheid et al. 4. Exotic matter in nuclei and stars. Neutrinos. Clusters of matter and antimatter: a mechanism for cold compression / W. Greiner. BRAHMS experiment quest for early universe phases of hadronic matter / Z. Majka. Strange matter in core-collapse supernova / J. Horvath. Neutrino astrophysics: gamma ray bursts / G. C. McLaughlin. Neutrino emission from neutron stars / D. G. Yakovlev ... [et al.]. New achievements in neutrino properties / S. Stoica. 5. High energy cosmic rays. The origin of cosmic rays / P. Biermann. The mystery of the highest energies in the universe / H. Rebel. The cosmic ray experiment KASCADE-GRANDE / I. M. Brancus et al. Prospects for the detection of high-energy cosmic rays using radio techniques / Ad van den Berg. 6. Nucleosynthesis and nuclear physics for astrophysics. Explosive nucleosynthesis: supernovae, classical novae, and X-ray bursts / J. Jose. Experimental approach to nuclear reactions of astrophysical interest involving radioactive nuclei / C. Angulo. Background studies at the LUNA underground accelerator facility / Zs. Fulop for the LUNA collaboration. Thoughts about two of the important reactions in nuclear astrophysics / L. Buchmann. Recent experimental studies of nuclear astrophysics using intermediate-energy exotic beams / T. Motobayashi. An indirect method using ANCs in nuclear astrophysics / R. E. Tribble et al. Recent applications of the Trojan-horse method in nuclear astrophysics / C. Spitaleri. Nuclear astrophysics experiments at CIAE / Weiping Liu et al. Global reaction models relevant to the p process / S. V. Harissopoulos. 7. Large facilities. TRIUMF - Canada's national laboratory for particle and nuclear physics / L. Buchmann. Status of the AGATA project / E. Farnea on the behalf of the AGATA collaboration. Research at ISOLDE and the path to Eurisol / P. A. Butler -- pt. II. Communications. Various types of measurements for atmospheric muons performed with the WILLI detector / A. Bercuci ... [et al.]. Few-valence-particle (hole) excitations around doubly magic nucleus [symbol]Sn / E. Dragulescu and D. Trancota. Possible E(5/4) symmetry in [symbol]Ba / M. Fetea ... [et al.]. Cold fusion channels of [symbol]¹¹⁴ / R. A. Gherghescu. Precise half-life measurement of [symbol]Ar, a superallowed [symbol] emitter / V. E. Iacob ... [et al.]. Quantum deformation of open systems / A. Isar and W. Scheid. Single-particle effects in threshold fission cross section / M. Mirea. Experimental and theoretical status of Borromean halo nuclei structure investigation / M. Petrascu. Z(4): [symbol]-rigid solution of the Bohr Hamiltonian for [symbol]=30[symbol] compared to the E(5) critical point symmetry / D. Bonatsos ... [et al.]. Isospin distillation from a microcanonical perspective / Ad. R. Raduta. Alpha half-life estimates for the superheavy elements with Z=10-116 / I. Silisteanu -- pt. III. Conclusions. Public lecture: dark energy - dark matter - and black holes: the music of the universe / P. L. Biermann. Concluding remarks. About the experimental appeal of CSSP05 / H. Rebel. Towards technology in society and business through science and education / P. L. Biremann -- List of participants -- Program.

Physics 2005 and a continuation of the traditional international summer schools that have taken place in Romania regularly since 1964. On one hand, the study of exotic nuclei seeks answers about the structure and interaction of unique finite quantum mechanical many-body systems. On the other, it provides data that have an impact on the understanding of the origin of the elements in the Universe. The contributions, written by outstanding professors from prestigious research centers over the world, provide the reader with both comprehensive reviews and the most recent results in the field. Large experimental facilities are discussed together with future research projects. The book offers insights into how experiments in terrestrial nuclear physics laboratories may be combined with observations in outer space to enlarge our basic knowledge."
