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Nota di contenuto	The use and ultimate validity of invariance principles -- Cohomology and contraction: The “non-relativistic” limit revisited -- Linearization — A unified approach -- Weyl kinematical groups of electromagnetic and energy-momentum tensors -- From spinors to probability amplitudes of external and internal variables for spinning particles -- A characterizatton of factor systems of locally-operating representations -- Recent developments on shift operators -- Unitary and non-unitary, multiplicity free irreducible representations of $SL(3, R)$ -- The symmetry group of a differential equation -- Group contractions and the $E(2)$ -like little group for massless particles as an infinite-momentum/zero-mass limit of the $O(3)$ -like little group for massive particles -- Representation approach to lattices of subgroups of space groups -- Young tableaux for the Lie superalgebra $OSP(M/N)$ -- The associated Lie Algebra of $\$\$ddot{x} + f2 \$\$dot{x} + f1x = f0$ -- Three-dimensional commutative diagram of group homomorphisms -- Indecomposable representations of Verma type -- Some recent results on the $SU(3)? SO(3)$ state labelling problem -- Irreducible projective representations of

the generalized symmetric groups  $B_{n,m}$  -- Indecomposable representations of some graded Lie Algebras -- Stephen Paneitz: A brief appreciation -- Indecomposable representations of the Poincare group and associated fields --  $SL(n,R)/SO(n)$  unirreps and group decontraction -- Hysteresis & universal bifurcation in natural processes -- Irreducible representations of the basic classical Lie superalgebras  $SU(m/n)$  ;  $SU(n/n)/U(1)$  ;  $OSp(m/2n)$  ;  $D(2/1 ; ?)$  ;  $G(3)$  ;  $F(4)$ . -- Group representations in indefinite metric spaces -- Tensor operator realisations of the classical Lie Algebras and non-trivial zeros of the 6j-symbol -- Yang - Baxter algebras of dynamical charges in the chiral gross - Neveu model -- Subgroups of Lie groups and symmetry reduction for nonlinear partial differential equations -- Spinorial description of Lie superalgebras -- Noetherian symmetries, backlund transformation and conservation laws for a completely integrable three dimensional system -- Einstein equations without killing vectors, self-dual Yang-Mills field and non-linear sigma models (integrability properties, links, new solutions) -- Jet bundle technique, Lie Bäcklund vector fields and diffusion equations -- A group-theoretic treatment of Gaussian optics and third-order aberrations -- Study of Michel's conjecture -- Conformally invariant solutions of Yang-Mills equations in Minkowski space -- Two body relativistic scattering with an  $O(1,1)$  symmetric square well potential -- Emergence of central extension of Kac-Moody algebra in quantum integrable models -- Cohomological interpretation of anomalies the example of the trace anomaly -- On pure, conformal and exotic spinors -- Pohlmeier-type transformations in general relativity -- On group covariance and the law of motion in a generalized metric theory -- Minimalization of Higgs potentials with application to the  $SU(5)$  model -- Self-dual monopoles and calorons --  $U(1)$  Invariant hierarchy theories in d-dimension antisymmetric gauge tensor fields -- Generalized connection forms with linearized curvature -- Dynamical symmetry breaking in  $S^4$  De Sitter space -- Applications of conformal invariance to gauge Quantum Field Theory -- On the necessity of breaking colour  $SU(3)$  symmetry -- Massive vector superfields with  $SU(2)$  internal symmetry -- Supergravity in eleven-dimensional space-time -- Dimensional reduction of exceptional gauge groups and flavor chirality -- Seven - Spheres from octonions -- A solution of Bianchi identities for extended supergravities --  $N=2$  unconstrained superfield supergravity from hypermultiplet -- Euclidean supersymmetries in three and four dimensions -- Gauge theories in higher dimensions: Linear relations for gauge fields, integrability conditions, spherical symmetry in eight dimensions -- Quantum vortices and diff (?) -- The time dependent  $Sp(2,?)$  model for the breathing mode -- The quark structure of nuclei from a group theoretical viewpoint -- Group theoretic approach to spherical anharmonic oscillator -- Operator averages and orthogonalities -- Advances in the theory of collective motion in nuclei -- Quantum effects in classical phase space: Symplectic structures associated to the scattering of nuclear fragments -- Gamow states in momentum representation -- Geometry of nuclear collective motions -- Is it possible to separate the kinetic energy and the velocity field into a collective and an intrinsic part W.R.T. the  $GL+(3,)R$  collectivity? -- Computer generated Clebsch-Gordan (C-G) coefficients for space groups -- Automorphism symmetries of space group representations -- Lattices of symmetric groups  $S_5$  and  $S_6$  and exomorphism of group-subgroup relations up to index 6 -- A direct-expansion method for tensor properties of crystals -- Isotropy groups of space groups — A simple method for their determination -- Landau's theory of crystalline phase transitions in a superspace formulation -- Symmetry breaking in

solid state and particle physics -- Counterexamples to the maximality conjecture of Landau-Higgs models -- Some mathematical problems in renormalization group theory -- On the Racah algebra for Shubnikov magnetic groups -- On periodic and non-periodic space fillings of  $E^m$  obtained by projection -- Invariants for physically irreducible representations of space groups -- On symmetry aspects of phase transitions with coupled parameters -- Quasisymmetry (P-symmetry) in crystals -- Braid groups and Euclidean Lie algebras in statistical mechanics of spin systems -- Phase coexistence in many-fermion systems -- Mean field renormalization group approach to lattice models -- Linear-antilinear representations of magnetic line groups -- Anderson transition and nonlinear  $\beta$ -model -- Do energy bands in solids have an identity -- Coupling coefficients for the space group of the hexagonal close-packed structure -- Harmonic analysis on phase space and Born's metric for space time -- Generalized Chebyshev polynomials and characters of  $GL(N, \mathbb{C})$  and  $SL(N, \mathbb{C})$  (fragments of results) -- Tensor operators as an extension of the universal enveloping algebra -- A group-theoretical criterion for an Einstein-Podolsky-Rosen state -- Group theory algebras and bosonization --  $SO(3)$  commutators for angular momentum and rotation observables -- Integrals of motion of nonstationary quantum systems -- Geometric properties of the lowest energy state for a polynomial Hamiltonian -- Groupes différentiels et physique mathématique -- Gauge invariance and canonical transformations in Dirac generalized mechanics.

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