ePublishing

ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΤΕΚΜΗΡΙΩΣΗΣ
EKT
NATIONAL DOCUMENTATION CENTRE

HNPS Advances in Nuclear Physics

Vol 2 (1991)

HNPS1991



Editorial Comments and Symposium Info

/ Editorial Comments

doi: 10.12681/hnps.2838

To cite this article:

Editorial Comments, /. (2020). Editorial Comments and Symposium Info. *HNPS Advances in Nuclear Physics*, *2*, i-ix. https://doi.org/10.12681/hnps.2838

https://epublishing.ekt.gr | **e-Publisher:** EKT | **Downloaded at:** 28/03/2024 14:59:35

NCSR "DEMOKRITOS"



UNIVERSITY OF ATHENS



2nd HELLENIC SYMPOSIUM ON NUCLEAR PHYSICS

12 and 13 April 1991

ATHENS, GREECE

Sponsored by
NCSR "DEMOKRITOS"
and the
UNIVERSITY OF ATHENS

Edited by G. S. Anagnostatos, D. Bonatsos and E. Mavrommatis

Published by the
NCSR "Demokritos", GR-15310 Aghia Paraskevi, Attiki, Greece
and the
University of Athens, Panepistimiopolis, Kouponia, GR-15771 Athens, Greece

Copies available from
G. S. Anagnostatos or D. Bonatsos
Institute of Nuclear Physics, NCSR "Demokritos"
GR-15310 Aghia Paraskevi, Attiki, Greece
Tel: (01) 6518770, Bitnet: GERAS@GRATHDEM or BONAT@GRATHDEM
or from
E. Mavrommatis
Nuclear and Particle Physics Section, University of Athens
Panepistimiopolis, Kouponia, GR-15771 Athens, Greece
Tel: (01) 7243362, Bitnet: SPN90@GRATHUN1

2nd HELLENIC SYMPOSIUM
ON
NUCLEAR PHYSICS

12–13 APRIL 1991
ATHENS, GREECE

Organizing Committee

G. S. Anagnostatos (NCSR "Demokritos")
D. Bonatsos (NCSR "Demokritos")
C. Kalfas (NCSR "Demokritos")
V. Katselis (NCSR "Demokritos")
E. Mavrommatis (U. Athens)

CONTENTS

Preface ix

Welcome address xi

Session I

A. Panagiotou *
Nucleus-Nucleus Interaction at High Energies

N. G. Antoniou 1
Fractal Geometry and Quark-Gluon Plasma Physics

E. Mavrommatis, M. Petraki, J. W. Clark and N. H. Kwong 15
On a Response Function and Two-Body Density Matrix of Nuclear Matter

N. H. Papadakis, N. P. Vodinas, Y. Cassagnou, R. Dayras, R. Fonte, G. Imme, R. Legrain, A. D. Panagiotou, E. C. Pollacco, G. Raciti, L. Rodriguez, F. Saint-Laurent, M. G. Saint-Laurent, N. Saunier 32
General Characteristics of Intermediate Mass Fragment Inclusive Cross Sections in ^{20}Ne Induced Reactions

N. H. Papadakis, N. P. Vodinas, Y. Cassagnou, R. Dayras, R. Fonte, G. Imme, R. Legrain, A. D. Panagiotou, E. C. Pollacco, G. Raciti, L. Rodriguez, F. Saint-Laurent, M. G. Saint-Laurent, N. Saunier 42
Inclusive Production of Intermediate Mass Fragments in ^{20}Ne+Ag, Au Interactions at 20-60 MeV/Nucleon

C. E. Vellidis, B. Frois, D. Goutte, N. Papadakis, C. N. Papanicolas, N. Vodinas, S. E. Williamson 61
Study of Nucleon Correlations in Heavy Nuclei with High Energy Elastic Electron Scattering

Session II

P. Van Isacker 82
Symmetries in Odd-Mass Nuclei

D. Bonatsos, L. D. Skouras, P. Van Isacker, M. A. Nagarajan 99
An Application of the Democratic Mapping in Realistic Systems

C. Syros 117
Collective Potential for Heavy Ion Nuclear Reactions

D. Bonatsos, E. N. Argyres, S. B. Drenska, P. P. Raychev, R. P. Roussev, Yu. F. Smirnov, A. Faessler 168
Quantum Algebraic Symmetries in Nuclear and Molecular Physics

D. Bonatsos, C. Daskaloyannis, K. Kokkotas 195
WKB Equivalent Potentials for the q-Deformed Harmonic and Anharmonic Oscillators

T. S. Kosmas and J. D. Vergados 209
Nuclear Momentum Distribution with Fractional Occupation Probabilities of Surface Orbits

Session III

P. Misaelides 217
Accelerator Based Analytical Techniques in the Metal and Semiconductor Surface Analysis

X. Aslanoglou, M. Pilakouta, P. Aloupogiannis, A. Travlos 229
Rutherford Back Scattering Using Heavy Ion Beams

V. Katselis, A. Naoumidis, N. Divis 236
A New Source for Production of ^{15}N Beam

M. Pilakouta, X. Aslanoglou, A. Savidou, T. Paradellis, E. Sideris 239
A Study of the Effects of ^{15} Ion Beam on Organic Compounds

A. Savidou, T. Paradellis, X. Aslanoglou, M. Pilakouta 245
The Use of PIGE as a Multielement Analytical Method for Low Z Elements

C. Potiriadis *
A Study of the Continuous Background in PIXE

N. Kallithrakas-Kontos, A. A. Katsanos 249
K-Shell Ionization and X-Ray Production Cross Sections by Protons in Vacuum and Gaseous Environment

Session IV

T. Paradellis *
Nucleosynthesis in the Early Universe

C. Kalfas *
Spectroscopy with Large Detection Systems

S. Kossionides 275
Advances in Experimental Technology by the EUROGAM Detector System

R. Vlastou, C. T. Papadopoulos, C. A. Kalfas, S. Kossionides, L. Hildingsson, W. Klamra, Th. Lindbland, C. G. Linden, R. Wyss 281
High Spin Structure of ^{173}Os

C. T. Papadopoulos and R. Vlastou 295
Spectroscopy in a Rotating Deformed Nucleus

S. Harissopulos, A. Dewald, K. O. Zell, A. Gelberg, P. von Brentano 308
Lifetimes of Transitional Nuclei in the A≃130 Region

E. N. Gazis, R. Vlastou, C. T. Papadoploulos, A. E. Aravantinos, A. C. Xenoulis, U. Lenz, K. E. G. Lobner, K. Rudolph, S. J. Skorka, H. G. Thies 325
The $^{16}O+^{12}C$ Resonances Investigation by the pn to d Competition Ratio Technique

A. A. Pakou, F. Brandolini, D. Bazzacco, P. Pavan, C. Rossi-Alvarez, E. Maglione, M. Depoli, R. Ribas 333
The $19/2^-$ g-Factor in ^{39}K Using a Transient Field-Fusion Reaction Technique

A. C. Xenoulis 341
Competition Between Light Cluster and Constituent Multinucleon Emission in Heavy-Ion Nuclear Reactions

Session V

M. E. Grypeos, G. A. Lalazissis, S. E. Massen, C. P. Panos 353
The "cosh" or Symmetrized Woods-Saxon Nuclear Potential

M. E. Grypeos, G. A. Lalazissis, S. E. Massen, C. P. Panos 369
Debye-Waller Type Expressions for the Nuclear Elastic Form Factors at Small Momentum Transfers

C. G. Koutroulos 382
Comparison Between the Relativistic and Non-Relativistic Treatment of the Λ-Hypernuclei

G. J. Papadopoulos, C. G. Koutroulos, M. E. Grypeos 389
Phenomenological Relativistic Study of the Energy of a Λ in its Ground and Excited States in Hypernuclei

A. N. Antonov, P. E. Hodgson, G. A. Lalazissis, E. N. Nikolov, I. Zh. Petkov 397
Alpha Particle Momentum Distribution in Nuclei within the Coherent Density Fluctuation Model

G. S. Anagnostatos 407
Fermion-Boson Classification in Microclusters

List of Participants 427

* presented but no manuscript received

PREFACE

This volume contains the Proceedings of the Second Hellenic Symposium on Nuclear Physics, which took place at the Institute of Nuclear Physics of National Center for Scientific Research (N.C.S.R.) "Demokritos" on the 12th and 13th of April 1991.

Over 60 physicists who work in the field of Low and Intermediate Energy Nuclear Physics gathered and presented their work. The latter represents the activity of almost all nuclear physicists who work at different academic institutes of Greece, in collaboration with colleagues from other countries and with the use of the local facilities along with facilities all over the world.

The papers in this volume have been reproduced by photocopying the original manuscripts submitted by the authors and contain their talks in the Symposium (in certain cases they have been updated by the authors). The various contributions have been displayed according to the session in which they have been presented. Uniformity in the presentation of the texts has been desirable, but in practice this has only partly been achieved.

The production of this volume was done in the facilities of N.C.S.R. "Demokritos" with financial support from the Division of Nuclear and Particle Physics of the University of Athens. We would like to thank them. We would also like to thank Mr. Ph. Trouposkiadis and Mrs. C. Saridakis for their help during publication.

It is hoped that these Proceedings, which follow the Proceedings of the First Hellenic Symposium on Theoretical Nuclear Physics published by the University of Thessaloniki in 1991, will continue to serve the community of nuclear physicists in Greece for better acquaintance with the work of the others who work in the same field, for stimulation of collaborations and finally for justification of their efforts towards getting an increased financial support from the relevant authorities. They will also inform colleagues abroad on current research on Nuclear Physics in Greece and stimulate further international collaborations.

The Editing Committee