MEASURES FOR HARTREE-FOCK STATES AND HAMILTONIAN OPERATORS AND A NEW VARIATIONAL METHOD IN THE STUDY OF NUCLEI

BY SATYAN VENKATARAMIAH

A THESIS SUBMITTED TO THE GUJARAT UNIVERSITY FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

OCTOBER 1976

B7702

PHYSICAL RESEARCH LABORATORY
AHMEDABAD 380 009
INDIA

TABLE OF CONTENTS

		Page
CERTIFIC	ATE	iii
STATEMEN		iv
ACKNOWLE	DGEMENTS	ix
TABLE OF	CONTENTS	xi
CHAPTER		
$oxed{f L}$.	INTRODUCTION	1
	References	9
	Maria de Caracteria de Car Maria del	
	MEASURES FOR APPROXIMATE WAVE FUNCTIONS AND CORRESPONDING VARIATIONAL PROCEDURES	
Λ.	Introduction	10
В.	The Hartree-Fock method	14
С.	The radial Hartree-Fock approximation	20
D.	Centre of mass motion and perturbation corrections	24
E.	A method for evaluating the widths of determinantal wave functions	29
F.	Numerical results and discussion	34
G.	The effect of enlarging the model space	39
	References	47

		Page
CHAPTER		
ling III	A VARIATIONAL METHOD BASED ON MINIMI- ZATION OF ENERGY VARIANCE	
Λ .	Introduction	49
В	Formulation of the method	50
C.	Perturbation theory corrections	58
D.	Numerical results and comparison with HF method	61
	References	81
IV	WIDTHS OF DEFORMED HARTREE-FOCK STATES	
A_{\bullet}	Introduction	82
В.	Deformed Hartree-Fock states and widths	83
С.	A Schematic interaction for the Od-1s shell	91
\mathtt{D}_{\bullet}	Numerical results and discussion	96
	References	110
V	UNITARY GROUPS AND OPERATOR NORMS	
Λ_ullet	Introduction	111
,B.	Norms of operators	114
С.	Decomposition of operators according to the group $U(N)$	120
\mathbf{D}_{\bullet}	Decomposition of operators according to the subgroup U(m)+U(N-m)	128

Page

CTT \ DITTED	ong construigt bushowly because content termés. I	
variation variations	our area pawer recourse the lite soundation in	or refewence
\mathbf{F}_ullet	Unitary group and Hartree-Fock Casados Approximation Sport 1982,200 kg sales applies in Rate 1882. Numerical results and discussion: Of-1p shells are a compared as a second	135
alac a G.	Numerical results and discussion: Od-1s shell References	168 182
TVI , Earli	SUMMARY AND FUTURE PROSPECTS	183
tos, uneor	eranel vaerbole ter understreching of se	o excilitati
	part of the substitute of the state of the substitute of the subst	Arrive At 1
vi Živodina esti 170 litili Visit	The the state of picture of a little	e i e e e e e e e e e e e e e e e e e e
	The state of the s	
	Language Color Carlo Light Colors (1994) 1994 Action Child Assets	. dari . Cudiliy
e Mandasandi. M		
Al Bibe profil	mente for land the source of the body of the source of the	
	and the second of the second o	ALC PARTS
	a vince (1987年) - 1987年 - 19874 - 19	