1 Introduction

1.1 Purpose

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 LOG NOTES

    **   THIS PACKAGE USES AN B-SPLINES CI IMPLEMENTATION    **
    **   FOR PRODUCING 2-E MULTICHANNEL STATES. BASICALLY    **
    **   IT IS A THE THE EQUIVALENT IN MATRIX REPRESANTATION **
    **   OF THE STANDARD CLOSE-COUPLING EQUATIONS            **
    **   IT ALSO CALCULATES 2-E DIPOLE MATRIX ELEMENTS       **
    **   (2-E DME), RENORMALIZES THEM IN S-MATRIX AND USING  **
    **   STANDARD LOPT, GENERALIZED 1/2-PHOTON CROSS SECTIONS **
    **   ARE PRODUCED                                        **
```

1.2 authors

```
  AUTHORS :   JIAN ZHANG              ( 1994 - 1996 )
              L. A. A. NIKOLOPOULOS   ( 2000 -       )
```

2 Revision 0.0

```
!


!
!     JAN1997      :  REVISION 0.0      JIANZHANGMPQMPG
!
!     PROGRAMS INCLUDED IN THE PACKAGE :
!
!     matrix.f90
!     dpnorm.f90
```

3 Revision 1.0

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!
!
!
!
!     16022002      :  REVISION 1.0      LAANIESLFORTH
!
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!     DATE       :     Sat Feb 16 20:04:48 EET 2002
!     INSTITUTE  :     IESL/FORTH
!
!
```

3.1 Package's programs

```
SOURCES1 = modules.f90 modio.f90 h1e.f90 spack.f soleig-fxd.f VHF_sub.f rinbat.f
OBJECTS1 = modules.o   modio.o   h1e.o    spack.o soleig-fxd.o VHF_sub.o rinbat.o
PRODUCT1 = Rh1e
LIBS1    =
#......................................................................
SOURCES2a = modio.f90 modules.f90  hdmx1e.f90 bsp.f     #dmxab
OBJECTS2a = modio.o   modules.o    hdmx1e.o   bsp.o
PRODUCT2a = Rhdmx1e
LIBS2a    =
#......................................................................
SOURCES2b = modio.f90 modules.f90 hdmx1eb.f90 bsp.f #dmxbbv.f90 modules.f90  bsp.f
OBJECTS2b = modio.o modules.o hdmx1eb.o bsp.o
PRODUCT2b = Rhdmx1eb
LIBS2b    =
#......................................................................
SOURCES3 = hr12.f    subhr12.f   ykfct-hx.f subio.f   cxfin1.f    ang.f
                rinbat.f  bsp.f       mkgrid.f
OBJECTS3 =  hr12.o    subhr12.o ykfct-hx.o subio.o   cxfin1.o    ang.o
                rinbat.o  bsp.o       mkgrid.o
PRODUCT3 = Rhr12
LIBS3    =
#......................................................................
SOURCES4 = modio.f90 h2e.f90   subio.f cxfin1.f
OBJECTS4 = modio.o   h2e.o     subio.o cxfin1.o
PRODUCT4 = Rh2e
LIBS4    = \${LINK_LAPACK}  \${LINK_BLAS}
#......................................................................
SOURCES4p = modio.f90 ph2e.f90   subio.f cxfin1.f parallel.f
OBJECTS4p = modio.o   ph2e.o     subio.o cxfin1.o parallel.o
PRODUCT4p = Ph2e
LIBS4p    = \${LINK_SCLPCK}
#......................................................................
SOURCES5 = modules.f90 modio.f90 kmtx.f90 subio.f cxfin1.f  bsp.f
OBJECTS5 = modules.o  modio.o    kmtx.o   subio.o cxfin1.o  bsp.o
PRODUCT5 = Rkmtx
LIBS5    = \${LINK_LAPACK}  \${LINK_BLAS}
#......................................................................
SOURCES6a = modio.f90 modhdmx2ebf.f90  subio.f  cxfin1.f hdmx2ebf.f90 subhdmx2e.f
OBJECTS6a = modio.o   modhdmx2ebf.o    subio.o  cxfin1.o hdmx2ebf.o   subhdmx2e.o
PRODUCT6a = Rhdmx2ebf
LIBS6a    = \${LINK_BLAS}
#......................................................................
SOURCES6b = modio.f90 modhdmx2eff.f90 subio.f hdmx2eff.f90 cxfin1.f subhdmx2e.f
OBJECTS6b = modio.o   modhdmx2eff.o   subio.o hdmx2eff.o   cxfin1.o subhdmx2e.o
PRODUCT6b = Rhdmx2eff
LIBS6b    = \${LINK_BLAS}
#......................................................................
SOURCES7a = modio.f90 dpnormbf.f90  subio.f cxfin1.f   # dpnormbf.f
OBJECTS7a = modio.o   dpnormbf.o    subio.o cxfin1.o
PRODUCT7a = Rdpnormbf
LIBS7a    = \${LINK_LAPACK}  \${LINK_BLAS}
```

```
#...............................................................
SOURCES7b = modio.f90 dpnormff.f90 subio.f cxfin1.f  subhdmx2e.f
OBJECTS7b = modio.o   dpnormff.o   subio.o cxfin1.o  subhdmx2e.o
PRODUCT7b = Rdpnormff
LIBS7b    = \${LINK_LAPACK}  \${LINK_BLAS}
#...............................................................
SOURCES7c = modio.f90 cs1ph.f90 subio.f cxfin1.f
OBJECTS7c = modio.o   cs1ph.o   subio.o cxfin1.o
PRODUCT7c = Rcs1ph_f
LIBS7d    = \${LINK_LAPACK}  \${LINK_BLAS}
#...............................................................
SOURCES7d = modio.f90 cs2ph.f90 subio.f cxfin1.f
OBJECTS7d = modio.o   cs2ph.o   subio.o cxfin1.o
PRODUCT7d = Rcs2ph_f
LIBS7d    = \${LINK_LAPACK}  \${LINK_BLAS}
#...............................................................
SOURCES8 = input.f
OBJECTS8  = input.o
PRODUCT8 = Rinput
LIBS8     =
#...............................................................
```

4   Rh1e