matri element m_zmel

```
!! ---------------------------------------
cold  ntqxx--->nqmax
cold  nbmax -->nmmax
!!note: For usual correlation mode, I think nctot=0
!!note: For self-energy mode;   we calculate <iq1|\Sigma |iq2> , where
iq1 and iq2 are in nqmax.
!!       nstate = nctot+nmmax
!!       allocate(zmelt(MPB,  intermediate phi nstate,  external state
phi ntqxx))
!!       zmelt= < MPB     phi   | phi   >
!!               <rkvec q-rkvec  |  q    >
 !                     cphim    | cphiq
!                      ispm     | ispq
!            nctot+  nmini:nmmax | ncc + nqini:ntqxx
!                    middle state| end state
!
!!--- For dielectric funciton, we use irot=1 kvec=rkvec=q. We calulate
\chi(q).
!!              q      rkvec     | q + rkvec
!                    nkmin:nkmax | nkqmin:nkqmax
!                   (we fix nkmin=1)
!           or
!              nt0=nkmax-nkmin+1 | ntp0=nkqmax-nkqmin+1
!                     1:nt0     | 1:ntp0
!                        occ    | unocc
!                     (cphi_k   | cphi_kq !in x0kf)
!                    middle state| end state
!
!! NOTE: dimension
!!   nmtot = nctot+ nmmax-mnini+1
!!   nqtot = ncc  + ntqxx-nqini+1
!!   <q 1:ngb,      q-rkvec, 1:nmtot | rkvec, 1:nqtot>
!!   <end state,       middle state  |  MPB          >
!!   rkvec =mutmul(symops(:,:,irot),kvec)
!! ---------------------------------------
```

PROF

Space group rotation of ecalj

- basic routines for spherical harmonics rotation.
  /home/takao/ecalj/SRC/subroutines/rdpp.F: call rotcg(nl-1,symope,ngrp,cgr)
  /home/takao/ecalj/SRC/subroutines/rotcg.F: call rotdlmm(symops, ng, 2*lmxax+1,dlmm)
  rotcg --> rotdlmm (rotation matrix of Ylm)
  m_zmel->rdpp --> rotcg (rotated CG coefficients)

- eigenfunction rotation on the PMT basis
  /home/takao/ecalj/SRC/main/hsfp0.sc.m.F: call rotwvigg(igrp,q(:,iqxx),q(:,iqxx),nhdim,

- m_zmel matrix elements
  mt part readcphif -> readeigen ->rotmto
  ipw part drvmelp melpl2 -> readgeigf ->rotipw
  mptauf_zmel, ppbafp_v2->cgr --->ppbir

    - eigenfunction (MT+IPW expansion) rotation
      readeigen->rotipw,rotmto
      /home/takao/ecalj/SRC/subroutines/readeigen.F: call rotipw(qtt(:,iqq),
      /home/takao/ecalj/SRC/subroutines/readeigen.F: call rotmto(qtt(:,iqq),cphifr,ldim2,nband,
    - gvector rotation rotgvec
      /home/takao/ecalj/SRC/subroutines/ppbafp.fal.F: call rotgvec(symope, 1, ngc, ngcs, qbas, ngvecc,

(wannier-based matrix element are implemented in wannier/wmatK_mpi.F(in principle, only readeigenW, cphieigW
are different)

- MPB rotation. symmetrization of x0
  x0kf->rotMPB2->rotmto2,rotipw2
  /home/takao/ecalj/SRC/subroutines/x0kf_v4h.F: call rotMPB2(nbloch,ngb,q,ig,itimer,ginv,zrotm)
  /home/takao/ecalj/SRC/subroutines/m_rotMPB.F: call rotmto2(qin,nbloch,ngbb,
  /home/takao/ecalj/SRC/subroutines/m_rotMPB.F: call rotipw2(qin,qout,ngcx,ngbb,
  /home/takao/ecalj/SRC/subroutines/m_rotMPB.F: call rotdlmm(symops,ngrp,nl,dlmm)

- Self-energy Sigma rotation. Read sigm.* which is expanded by MTO basis only (neglecting IPW components)
  /home/takao/ecalj/SRC/subroutines/rdsigm2.F: call
  rotsig(qin,q1,ndimh,napw_in,ldim,hq,gfbz(i1,i2,i3,:😅,ierr,iaf)

PROF

Old codes

/home/takao/ecalj/SRC/subroutines/m_hamindex.F: call rotdlmm(symops,ngrp, nl, dlmm)
/home/takao/ecalj/SRC/subroutines/m_hamindex.F: call rotdlmm(symops,ngrp, nl, dlmm)
/home/takao/ecalj/SRC/subroutines/m_q0p.F: call rotcg(lmxax,
(/1d0,0d0,0d0,0d0,1d0,0d0,0d0,0d0,1d0/),1,cg)
/home/takao/ecalj/SRC/subroutines/mptauof.F: call rotcg(lmxax,(/1d0,0d0,0d0,0d0,1d0,0d0,0d
/home/takao/ecalj/SRC/wanniergw/hpsig.F: call rotcg(nl-1,symope,ngrpx,cg)
/home/takao/ecalj/SRC/wanniergw/hpsig_MPI.F: call rotcg(nl-1,symope,ngrpx,cg)
/home/takao/ecalj/SRC/wanniergw/huumat.F: call rotcg(nl-1,symope,ngrpx,cg)
/home/takao/ecalj/SRC/wanniergw/huumat_MPI.F: call rotcg(nl-1,symope,ngrpx,cg)
/home/takao/ecalj/SRC/wanniergw/hwmatK.F:c call rotgvec(symgg(:,:,irot), nqibz,
/home/takao/ecalj/SRC/wanniergw/hwmatK_MPI.F:c call rotgvec(symgg(:,:,irot), nqibz,

/home/takao/ecalj/SRC/subroutines/a2rotm.F: call rotma(phi,theta,angle,rotj)
/home/takao/ecalj/SRC/subroutines/chkdmu.F: call rotycs(-1,vorb,nbas,nsp,lmaxu,sspec,ssite,lldau)
/home/takao/ecalj/SRC/subroutines/sudmtu.F: call rotycs(2*idvsh-
1,dmatu,nbas,nsp,lmaxu,sspec,ssite,lldau)
/home/takao/ecalj/SRC/subroutines/mkplat.F: call rotmat(-1,.false.,nrot(m),mat,vecg)
/home/takao/ecalj/SRC/subroutines/rothrm.F: call rothrm(2,ndimh,iprmb,rotm,1,nbas,ndimh,uz,uz)
/home/takao/ecalj/SRC/subroutines/rothrm.F: call rothph(02,qpr,delT,ndimh,iprmb,1,nbas,ndimh,sq1)
/home/takao/ecalj/SRC/subroutines/rsmsym.F: call rotpnt(v,rv,g(1,ig))
/home/takao/ecalj/SRC/subroutines/symdmu.F: call rotspu(0,1,1,eula,1,u(1,1,ig))
/home/takao/ecalj/SRC/subroutines/symiax.F: call rotpnt(v,rv,g(1,ig))
/home/takao/ecalj/SRC/wanniergw/hmaxloc.F: call rot_hmnk(umnk,eunk,