```
CALL FLOQUETINIT('qubit','U',2,ID,INFO)

D_BARE = ID%D_BARE

MODES_NUM(1) = 1 !(STATIC FIELD)
MODES_NUM(2) = 1 !(DRIVING BY ONE HARMONIC)

FIELDS(1)%X    = 0.0
FIELDS(1)%Y    = 0.0
FIELDS(1)%Z    = 1.0
FIELDS(1)%phi_x = 0.0
FIELDS(1)%phi_y = 0.0
FIELDS(1)%phi_z = 0.0
FIELDS(1)%omega = 0.0
FIELDS(1)%N_Floquet = 0

FIELDS(2)%X     = 2.0
FIELDS(2)%Y     = 0.0
FIELDS(2)%Z     = 0.0
FIELDS(2)%phi_x = 0.0
FIELDS(2)%phi_y = 0.0
FIELDS(2)%phi_z = 0.0
FIELDS(2)%omega = 1.0
FIELDS(2)%N_Floquet = 20
```

Initialize the system, prepare memory arrays

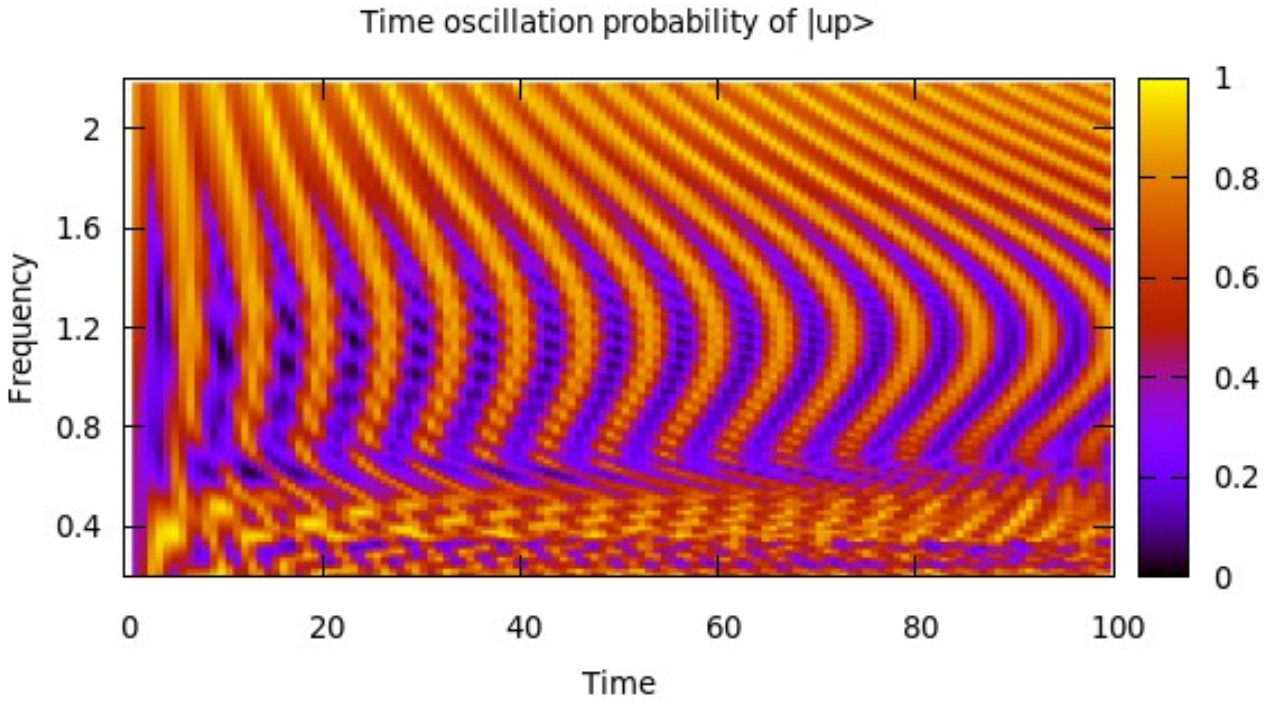
Define modes and harmonics

Set parameters of the Hamiltonian

Calculate time-evolution operator

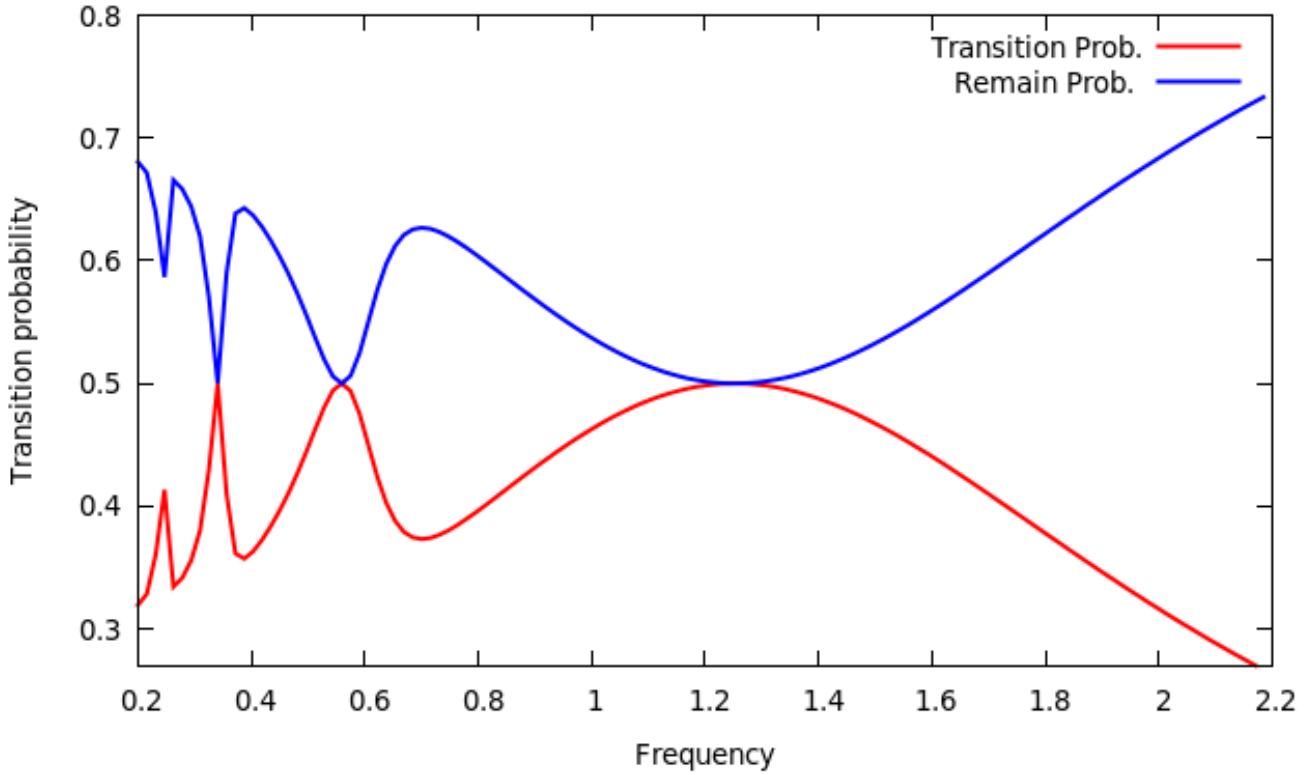
```
!--- EVALUATE TIME-EVOLUTION OPERATOR IN THE BARE BASIS
T1 = 0.0
T2 =4.0*atan(1.0)
CALL TIMEEVOLUTIONOPERATOR(ID,D_BARE,SIZE(MODES_NUM,1),MODES_NUM,FIELDS,T1,T2,U_AUX,INFO)
 WRITE(3,*) T2 ,FIELDS(2)%OMEGA, ABS(U_AUX)**2
```

```
CALL FLOQUETINIT('qubit','U',2,ID,INFO)

D_BARE = ID%D_BARE

MODES_NUM(1) = 1 !(STATIC FIELD)
MODES_NUM(2) = 1 !(DRIVING BY ONE HARMONIC)

FIELDS(1)%X    = 0.0
FIELDS(1)%Y    = 0.0
FIELDS(1)%Z    = 1.0
FIELDS(1)%phi_x = 0.0
FIELDS(1)%phi_y = 0.0
FIELDS(1)%phi_z = 0.0
FIELDS(1)%omega = 0.0
FIELDS(1)%N_Floquet = 0

FIELDS(2)%X     = 2.0
FIELDS(2)%Y     = 0.0
FIELDS(2)%Z     = 0.0
FIELDS(2)%phi_x = 0.0
FIELDS(2)%phi_y = 0.0
FIELDS(2)%phi_z = 0.0
FIELDS(2)%omega = 1.0
FIELDS(2)%N_Floquet = 20
```




```
!--- EVALUATE TIME-EVOLUTION OPERATOR IN THE BARE BASIS
T1 = 0.0
T2 =4.0*atan(1.0)
CALL TIMEEVOLUTIONOPERATOR(ID,D_BARE,SIZE(MODES_NUM,1),MODES_NUM,FIELDS,T1,T2,U_AUX,INFO)
 WRITE(3,*) T2 ,FIELDS(2)%OMEGA, ABS(U_AUX)**2
```

```
CALL FLOQUETINIT('qubit','U',2,ID,INFO)

D_BARE = ID%D_BARE

MODES_NUM(1) = 1 !(STATIC FIELD)
MODES_NUM(2) = 1 !(DRIVING BY ONE HARMONIC)

FIELDS(1)%X    = 0.0
FIELDS(1)%Y    = 0.0
FIELDS(1)%Z    = 1.0
FIELDS(1)%phi_x = 0.0
FIELDS(1)%phi_y = 0.0
FIELDS(1)%phi_z = 0.0
FIELDS(1)%omega = 0.0
FIELDS(1)%N_Floquet = 0

FIELDS(2)%X     = 2.0
FIELDS(2)%Y     = 0.0
FIELDS(2)%Z     = 0.0
FIELDS(2)%phi_x = 0.0
FIELDS(2)%phi_y = 0.0
FIELDS(2)%phi_z = 0.0
FIELDS(2)%omega = 1.0
FIELDS(2)%N_Floquet = 20
```




```
!--- EVALUATE TIME-EVOLUTION OPERATOR IN THE BARE BASIS
T1 = 0.0
T2 =4.0*atan(1.0)
CALL TIMEEVOLUTIONOPERATOR(ID,D_BARE,SIZE(MODES_NUM,1),MODES_NUM,FIELDS,T1,T2,U_AUX,INFO)
 WRITE(3,*) T2 ,FIELDS(2)%OMEGA, ABS(U_AUX)**2
```

```
CALL FLOQUETINIT('qubit','U',2,ID,INFO)

D_BARE = ID%D_BARE

MODES_NUM(1) = 1 !(STATIC FIELD)
MODES_NUM(2) = 1 !(DRESSING FIELD)
MODES_NUM(3) = 1 !(PROBING FIELD)

FIELDS(1)%X    = 0.0
FIELDS(1)%Y    = 0.0
FIELDS(1)%Z    = 1.0
          .
          .

FIELDS(2)%X     = 2.0
FIELDS(2)%Y     = 0.0
FIELDS(2)%Z     = 0.0
          .
          .

FIELDS(3)%X    = 0.0
FIELDS(3)%Y    = 0.0
FIELDS(3)%Z    = 1.0
          .
          .

 CALL DRESSEDBASIS_SUBSET(ID, …. ) !

 T1 = 0.0
 T2 =4.0*atan(1.0)
 CALL TIMEEVOLUTIONOPERATOR(ID,D_BARE, U_BARE ...)

 CALL MULTIMODEMICROMOTION(ID,T1,U1 ….)
 CALL MULTIMODEMICROMOTION(ID,T2,U2 ….)

 U_DRESSED = MATMUL(TRANSPOSE(CONJG(U2)), MATMUL(U_BARE,U1))
```

Initialize the system, prepare memory arrays

Define modes and harmonics

Set parameters of the Hamiltonian

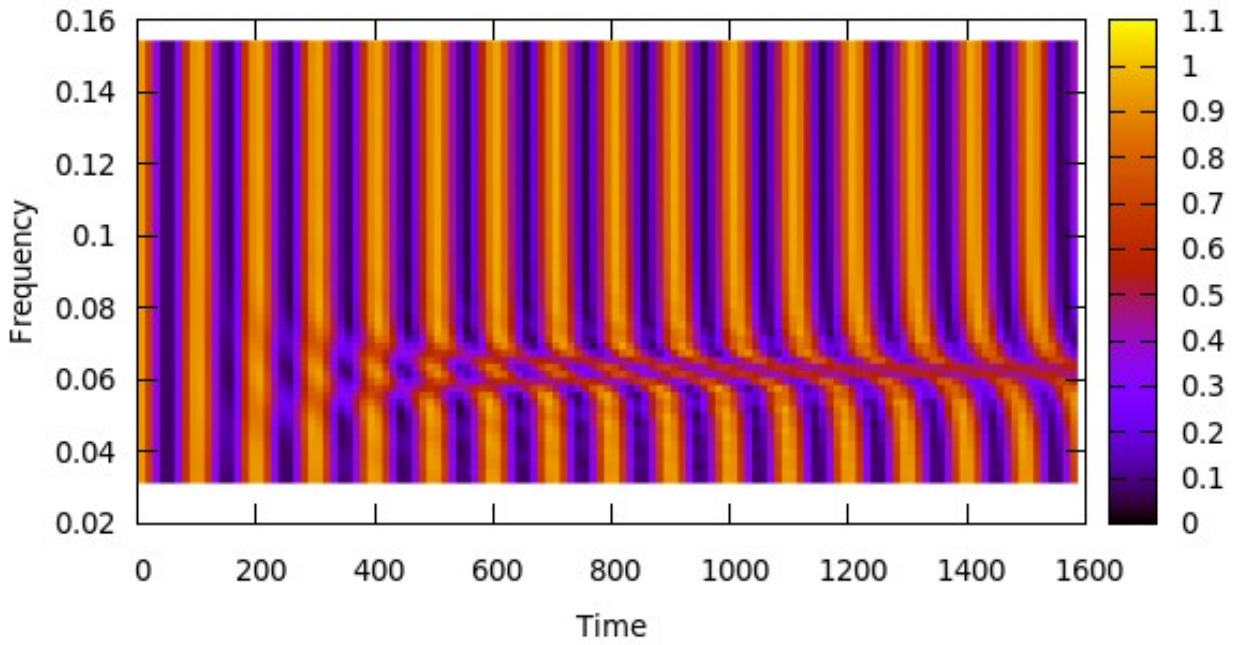
Define the dressing basis

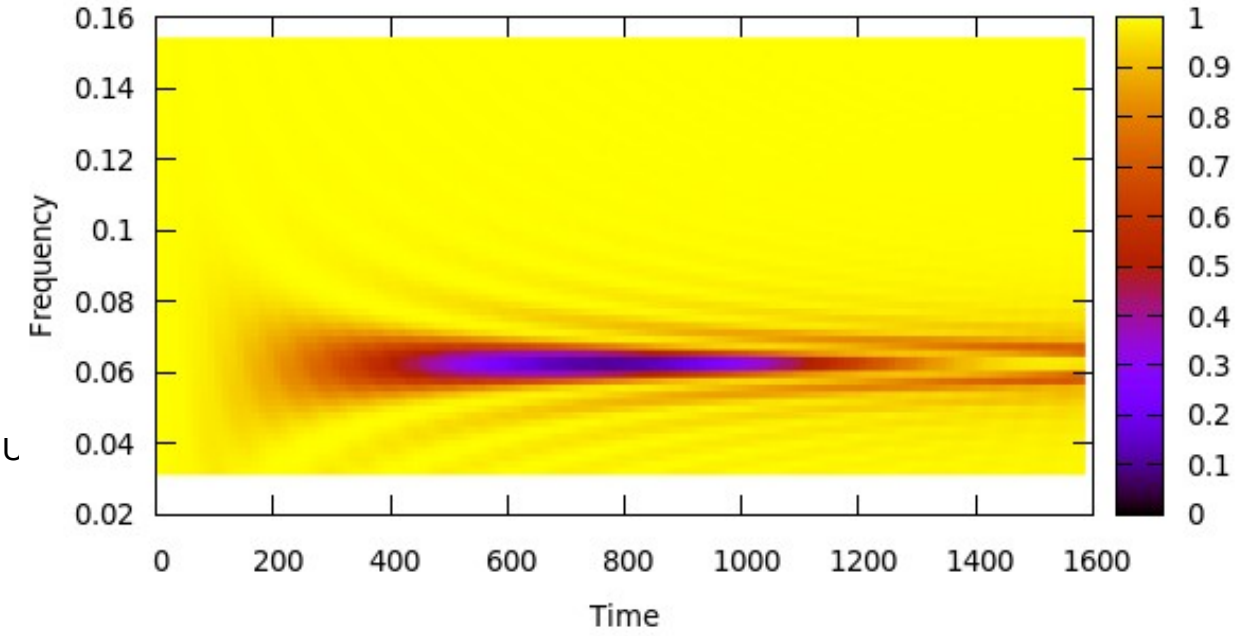
Calculate the time evolution operator bare basis

Calculate micromotion operators

Calculate evolution in the dressed basis

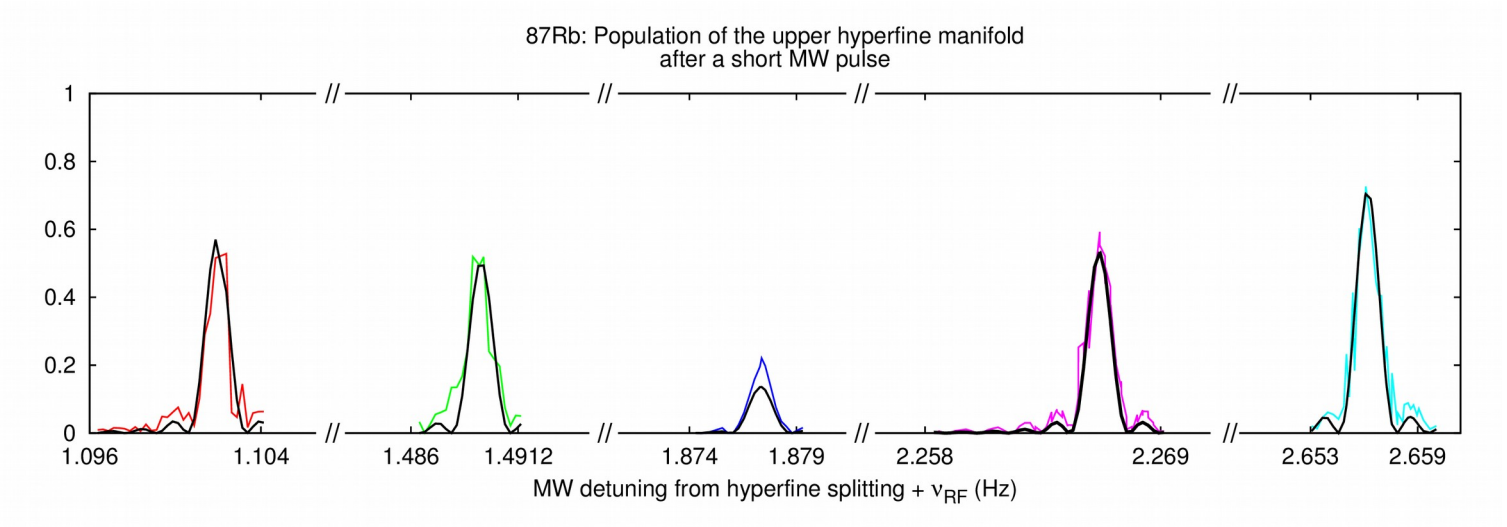
```
CALL FLOQUETINIT('qubit','U',2,ID,INFO)

D_BARE = ID%D_BARE

MODES_NUM(1) = 1 !(STATIC FIELD)
MODES_NUM(2) = 1 !(DRESSING FIELD)
MODES_NUM(3) = 1 !(PROBING FIELD)

FIELDS(1)%X    = 0.0
FIELDS(1)%Y    = 0.0
FIELDS(1)%Z    = 1.0
          .
          .

FIELDS(2)%X     = 2.0
FIELDS(2)%Y     = 0.0
FIELDS(2)%Z     = 0.0
          .
          .

FIELDS(3)%X    = 0.0
FIELDS(3)%Y    = 0.0
FIELDS(3)%Z    = 1.0
          .
          .

 CALL DRESSEDBASIS_SUBSET(ID, …. ) !

 T1 = 0.0
 T2 =4.0*atan(1.0)
 CALL TIMEEVOLUTIONOPERATOR(ID,D_BARE, U

 CALL MULTIMODEMICROMOTION(ID,T1,U1 ….)
 CALL MULTIMODEMICROMOTION(ID,T2,U2 ….)
```






```
 U_DRESSED = MATMUL(TRANSPOSE(CONJG(U2)), MATMUL(U_BARE,U1))
```

```
CALL FLOQUETINIT('Rb87','B',8,ID,INFO)

D_BARE = ID%D_BARE

MODES_NUM(1) = 1 !(DC  FIELD)
MODES_NUM(2) = 1 !(RF DRESSING FIELD)
MODES_NUM(3) = 1 !(MW PROBING FIELD)

FIELDS(1)%X    = 0.0
FIELDS(1)%Y    = 0.0
FIELDS(1)%Z    = 1.0E-4
          .
          .

FIELDS(2)%X     = 2.0E-5
FIELDS(2)%Y     = 0.0
FIELDS(2)%Z     = 0.0
          .
          .

FIELDS(3)%X    = 0.0
FIELDS(3)%Y    = 0.0
FIELDS(3)%Z    = 1.0E-7
          .
          .
```




```
CALL DRESSEDBASIS_SUBSET(ID, …. ) !

T1 = 0.0
T2 =700E-6
CALL TIMEEVOLUTIONOPERATOR(ID,D_BARE, U_BARE ...)

CALL MULTIMODEMICROMOTION(ID,T1,U1 ….)
CALL MULTIMODEMICROMOTION(ID,T2,U2 ….)


U_DRESSED = MATMUL(TRANSPOSE(CONJG(U2)), MATMUL(U_BARE,U1))
```