```c
rad0 = (Rings*)calloc(1,sizeof(Rings));
ell=(Ell*)calloc(1,sizeof(Ell));

ringp->radsep=2.0*dy;
ringp->nr=lround(ringp->rmax/ringp->radsep);

//initialize the rings
rad0->radii = (double*)calloc(ringp->nr,sizeof(double));
rad0->vrot = (double*)calloc(ringp->nr,sizeof(double));
rad0->vdisp = (double*)calloc(ringp->nr,sizeof(double));
rad0->vexp = (double*)calloc(ringp->nr,sizeof(double));
rad0->pa = (float*)calloc(ringp->nr,sizeof(float));
rad0->inc = (double*)calloc(ringp->nr,sizeof(double));
rad0->phi = (float*)calloc(ringp->nr,sizeof(float));
rad0->z0 = (double*)calloc(ringp->nr,sizeof(double));
rad0->dens = (double*)calloc(ringp->nr,sizeof(double));
rad0->nv = (int*)calloc(ringp->nr,sizeof(int));

//Building of the rings
rad0->nr=ringp->nr;

//Main function
void kinematic_model (Src_hyp *ringp, Cube_p *cubep, Gdat *sr, Gdat *img, Opt *op, PetscMPIInt rank)
{

    Rings *rad0, *rad1;
    Ell *ell;
    int i, k,dim_x=cubep->dim_x, dim_y=cubep->dim_y, dimr;
    double dy=cubep->dy, dx=cubep->dx;
    double freq=cubep->frequency;
    double sigma_str=cubep->sigma;
    double tot_mod;
    double tot_data=0.0;
    double *ellis;


    rad0 = (Rings*)calloc(1,sizeof(Rings));
    ell=(Ell*)calloc(1,sizeof(Ell));

    ringp->radsep=2.0*dy;
    ringp->nr=lround(ringp->rmax/ringp->radsep);

    //initialize the rings
    rad0->radii = (double*)calloc(ringp->nr,sizeof(double));
    rad0->vrot = (double*)calloc(ringp->nr,sizeof(double));
    rad0->vdisp = (double*)calloc(ringp->nr,sizeof(double));
    rad0->vexp = (double*)calloc(ringp->nr,sizeof(double));
    rad0->pa = (float*)calloc(ringp->nr,sizeof(float));
    rad0->inc = (double*)calloc(ringp->nr,sizeof(double));
    rad0->phi = (float*)calloc(ringp->nr,sizeof(float));
    rad0->z0 = (double*)calloc(ringp->nr,sizeof(double));
    rad0->dens = (double*)calloc(ringp->nr,sizeof(double));
    rad0->nv = (int*)calloc(ringp->nr,sizeof(int));

    //Building of the rings
    rad0->nr=ringp->nr;

//Main function
void kinematic_model (Src_hyp *ringp, Cube_p *cubep, Gdat *sr, Gdat *img, Opt *op, PetscMPIInt rank)
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    Rings *rad0, *rad1;
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    int i, k,dim_x=cubep->dim_x, dim_y=cubep->dim_y, dimr;
    double dy=cubep->dy, dx=cubep->dx;
    double freq=cubep->frequency;
    double sigma_str=cubep->sigma;
    double tot_mod;
    double tot_data=0.0;
    double *ellis;

    rad0 = (Rings*)calloc(1,sizeof(Rings));
    ell=(Ell*)calloc(1,sizeof(Ell));

    ringp->radsep=2.0*dy;
    ringp->nr=lround(ringp->rmax/ringp->radsep);

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    rad0->vexp = (float*)calloc(ringp->nr,sizeof(float));
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    rad0->z0 = (double*)calloc(ringp->nr,sizeof(double));
    rad0->dens = (double*)calloc(ringp->nr,sizeof(double));
    rad0->nv = (int*)calloc(ringp->nr,sizeof(int));
```