

GUILLERMO HARO ADVANCED SCHOOL ON MODELLING THE IONIZED UNIVERSE

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<http://www.inaoep.mx/~progharo/gh2017/>



```
/* Carbon cooling */
coolnum = thermal.ncltot;
CoolCarb();
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipCARBON] += thermal.cooling[coolcal];
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT C %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);

/* Nitrogen cooling */
coolnum = thermal.ncltot;
CoolNitr();
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipNITROGEN] += thermal.cooling[coolcal];
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT N %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);

/* Oxygen cooling */
coolnum = thermal.ncltot;
CoolOxyg();
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipOXYGEN] += thermal.cooling[coolcal];
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT O %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);

/* Neon cooling */
coolnum = thermal.ncltot;
CoolNeon();
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT Ne %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipNEON] += thermal.cooling[coolcal];

/* Magnesium cooling */
coolnum = thermal.ncltot;
CoolMagn();
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT Mg %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipMAGNESIUM] += thermal.cooling[coolcal];

/* Sodium cooling */
coolnum = thermal.ncltot;
CoolSodi();
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipSODIUM] += thermal.cooling[coolcal];
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT Na %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);

/* Aluminium cooling */
coolnum = thermal.ncltot;
CoolAlum();
for( coolcal = coolnum; coolcal < thermal.ncltot; coolcal++ )
    thermal.elementcool[ipALUMINIUM] += thermal.cooling[coolcal];
if( PRT_DERIV )
    fprintf(ioQQQ,"DEBUG dCdT Al %.3e dHdT %.3e\n",thermal.dCooldT, thermal.dHeatdT);

/* Silicon cooling */
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