

Vizualizace Parkovy Transformace - Indukčnosti 02

Purpose

Jednoduchá demonstrace Parkovy transformace

Description

Snaha o grafickou a vektorovou demonstraci tokových veličin ve statoru a rotoru synchronního stroje.

System

Sites of Interaction

System Parameters

$$I_f = 1$$

$$L_{aFm} = 0.9$$

$$L_{a0} = 0.9$$

$$L_2 = 0.3$$

$$L_{ab0} = 0.9$$

$$L_{ff} = 2$$

$$L_{aDm} = 0.5$$

$$L_{aQm} = 0.5$$

$$K_d = 0.8165$$

$$K_q = 0.8165$$

$$K_0 = 0.5774$$

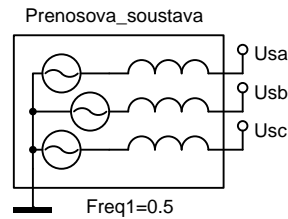
System excitation

Task

Assumptions

Solution

Model



Data

*: Vizualizace Parkovy Transformace - Induk nosti 02

*SYSTEM;

Prenosova_soustava > @PowerSource3f2 Usa,Usb,Usc,
0 / Freq1=0.5;

Zatizeni /TAB/ 0,0, 3,0, 6,0.6, 10,0.6;

ZatUhel=Zatizeni(Time);

Theta=1Pi*Time+ZatUhel;

Ia=Usa/1e5;Ib=Usb/1e5;Ic=Usc/1e5;

If=1;

LaFm=0.9;

La0=0.9;

L2=0.3;

Lab0=0.9;

Lff=2;

LaDm=0.5;

LaQm=0.5;

LaF=LaFm*cos(Theta);

LbF=LaFm*cos(Theta-2Pi/3);

LcF=LaFm*cos(Theta+2Pi/3);

Laa=La0+L2*cos(2*(Theta));

Lbb=La0+L2*cos(2*(Theta-2Pi/3));

Lcc=La0+L2*cos(2*(Theta+2Pi/3));

Lab=-Lab0+L2*cos(2*(Theta+2Pi/3));

Lbc=-Lab0+L2*cos(2*(Theta));

Lca=-Lab0+L2*cos(2*(Theta-2Pi/3));

LaD=LaDm*cos(Theta);

LbD=LaDm*cos(Theta-2Pi/3);

LcD=LaDm*cos(Theta+2Pi/3);

LaQ=LaQm*cos(Theta+1Pi/2);

LbQ=LaQm*cos(Theta-2Pi/3+1Pi/2);

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LcQ=LaQm*cos(Theta+2Pi/3+1Pi/2);

Ld=La0+Lab0+3/2*L2;
Lq=La0+Lab0-3/2*L2;

FiaS=Laa*Ia+Lab*Ib+Lca*Ic;
FibS=Lab*Ia+Lbb*Ib+Lbc*Ic;
FicS=Lca*Ia+Lbc*Ib+Lcc*Ic;

TokStatorX=FiaS*cos(0)+FibS*cos(2Pi/3)+FicS*cos(-2Pi/3);
TokStatorY=FiaS*sin(0)+FibS*sin(2Pi/3)+FicS*sin(-2Pi/3);

Fia=FiaS+LaF*If;
Fib=FibS+LbF*If;
Fic=FicS+LcF*If;

TokRotorX=Lff*If*cos(Theta-1Pi/2);
TokRotorY=Lff*If*sin(Theta-1Pi/2);

Kd=0.8165; : sqrt(2/3)
Kq=0.8165; : sqrt(2/3)
K0=0.5774; : sqrt(1/3)

Fid= Kd*( FiaS*cos(Theta)+FibS*cos(Theta-2Pi/3)+FicS*cos(Theta+2Pi/3));
Fiq=-Kq*( FiaS*sin(Theta)+FibS*sin(Theta-2Pi/3)+FicS*sin(Theta+2Pi/3));
Fi0= K0*( FiaS+FibS+FicS);

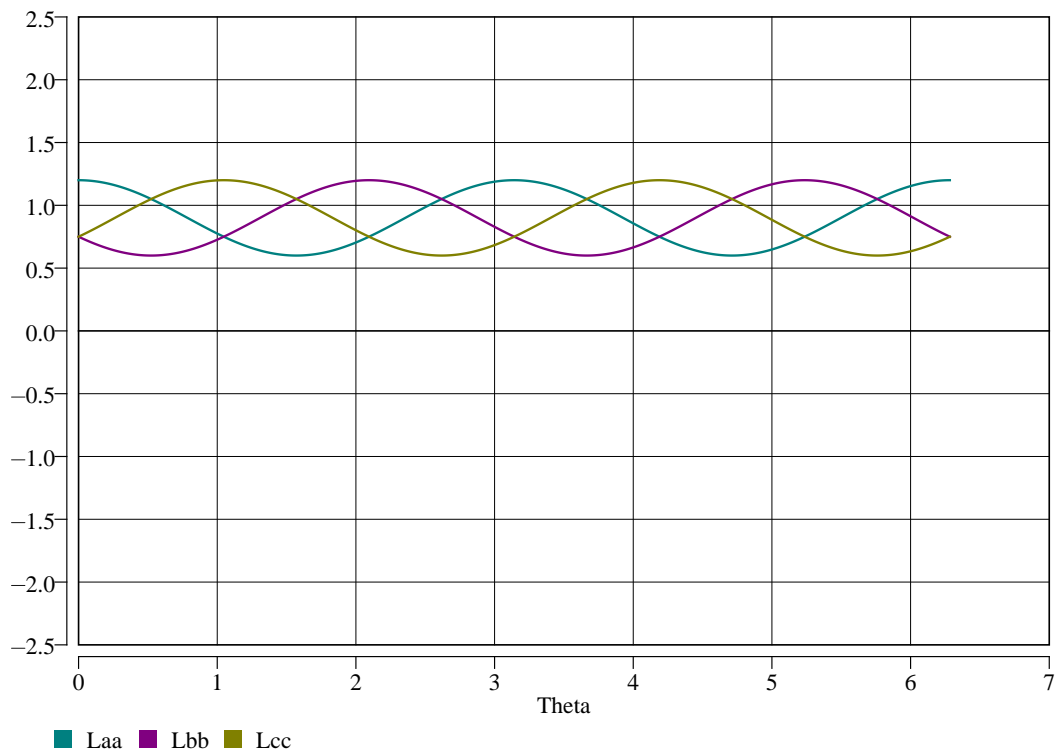
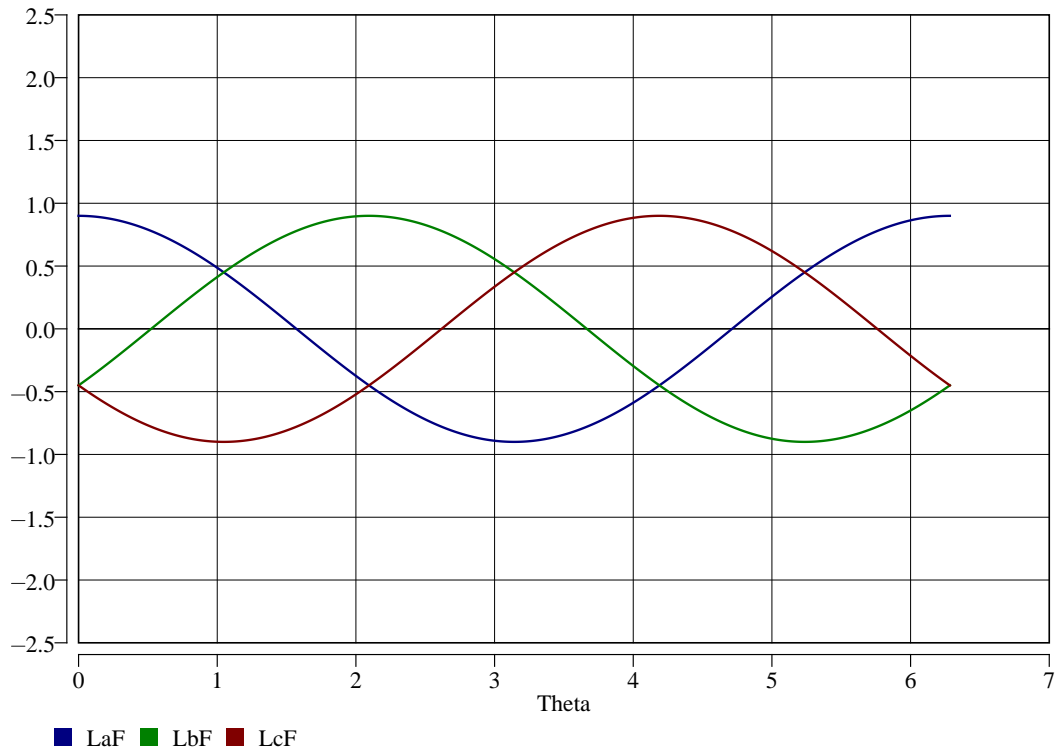
FidX=Fiq*cos(Theta+1Pi/2);
FidY=Fiq*sin(Theta+1Pi/2);
FiqX=Fid*cos(Theta);
FiqY=Fid*sin(Theta);

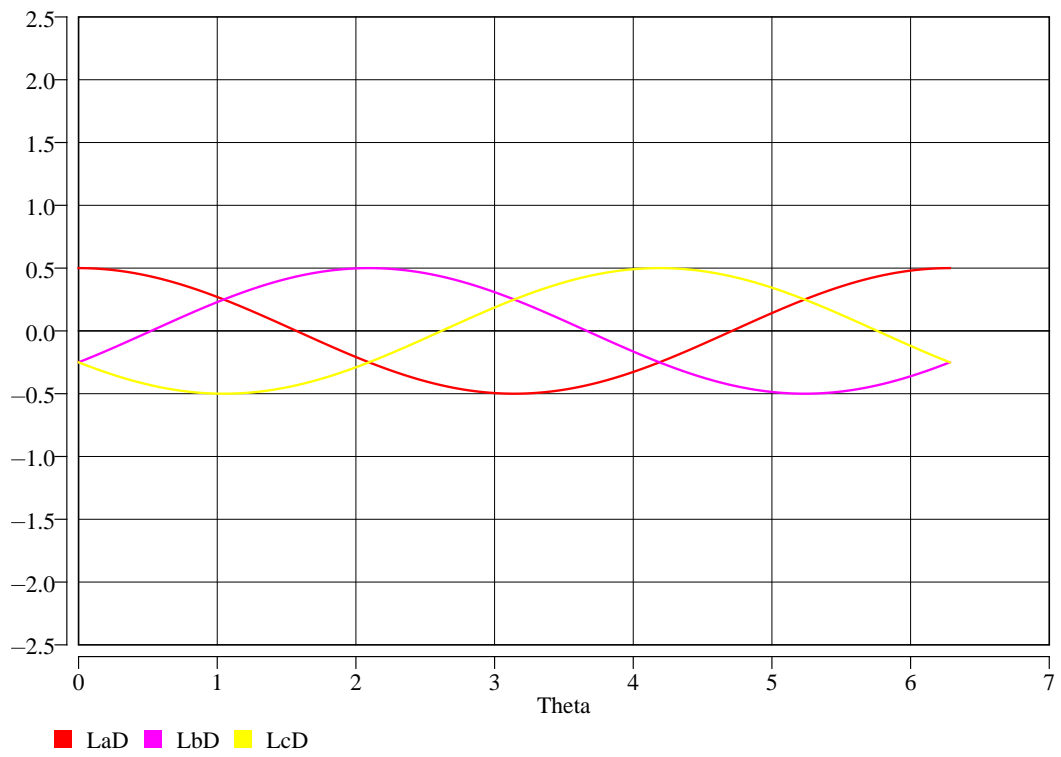
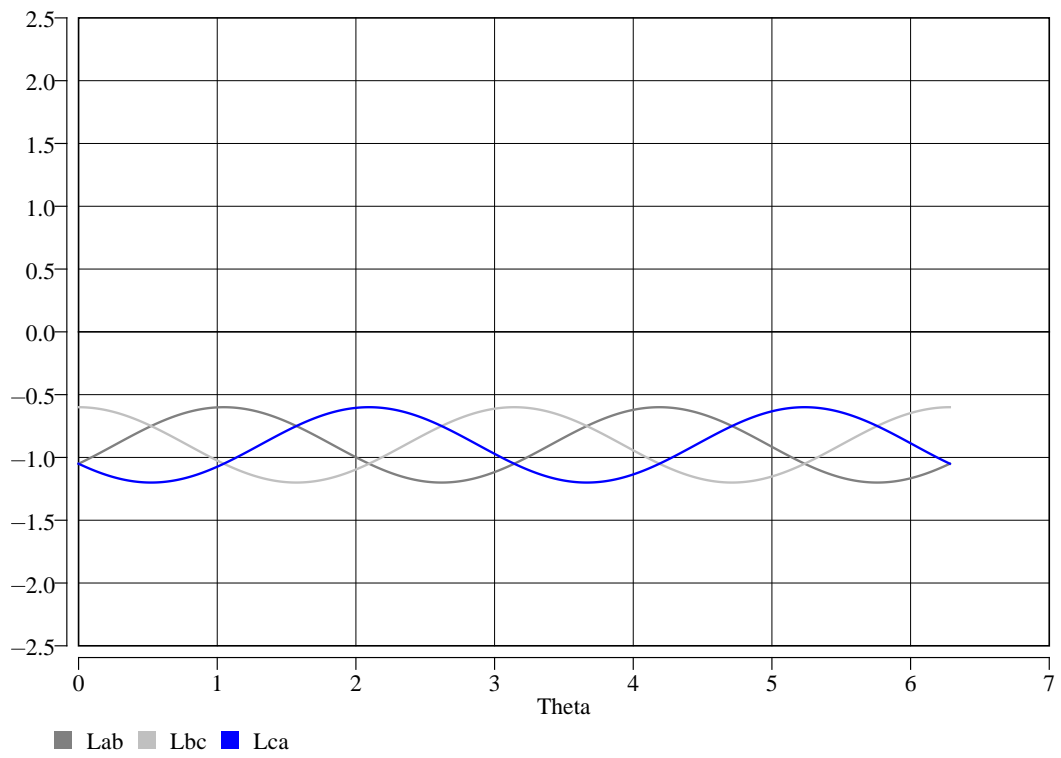
TokStator=sqrt(TokStatorX*TokStatorX+TokStatorY*TokStatorY);
TokStatorUhel=ATAN(TokStatorY/TokStatorX);

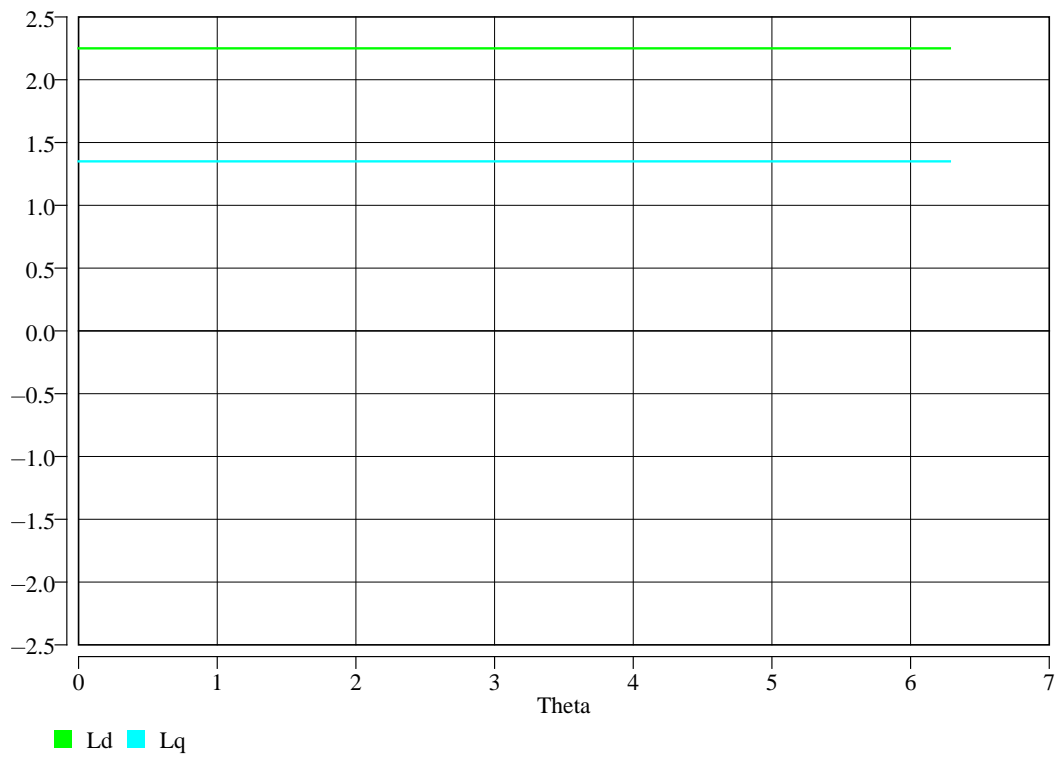
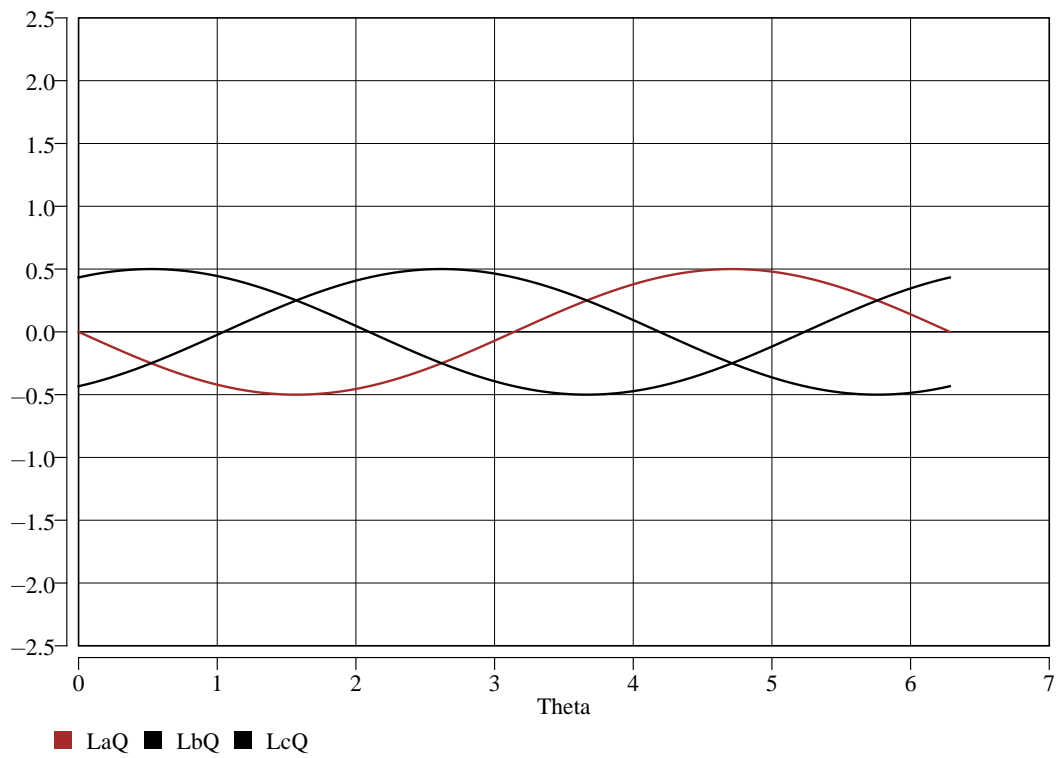
TokRotor=sqrt(TokRotorX*TokRotorX+TokRotorY*TokRotorY);
TokRotorUhel=ATAN(TokRotorY/TokRotorX);

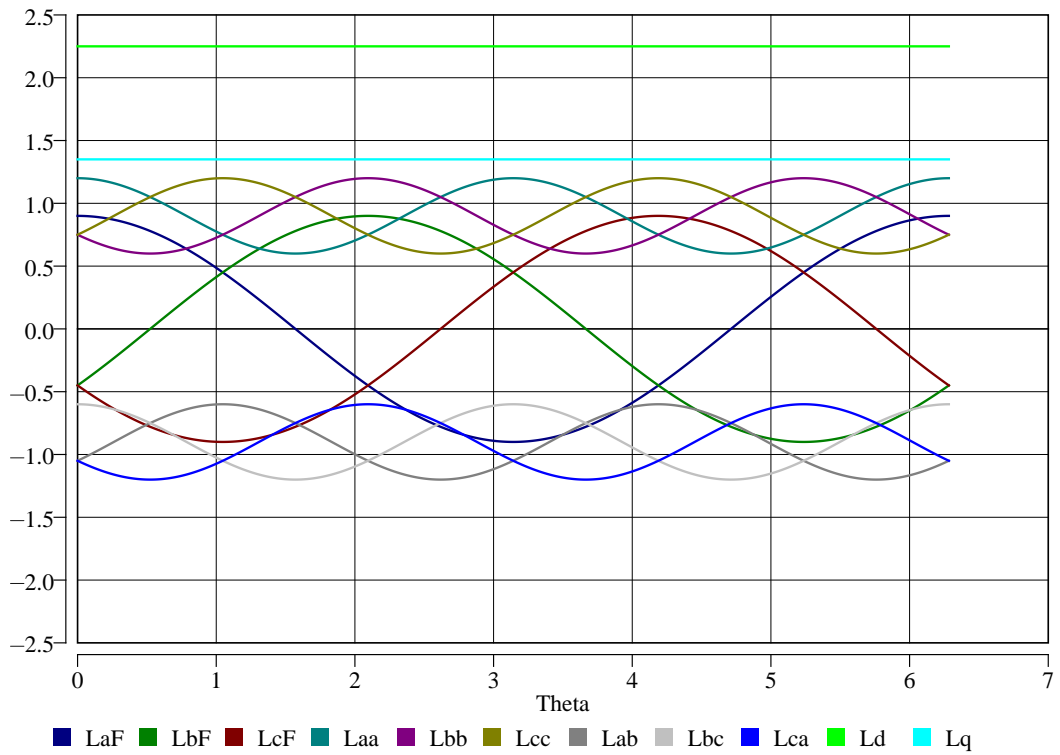
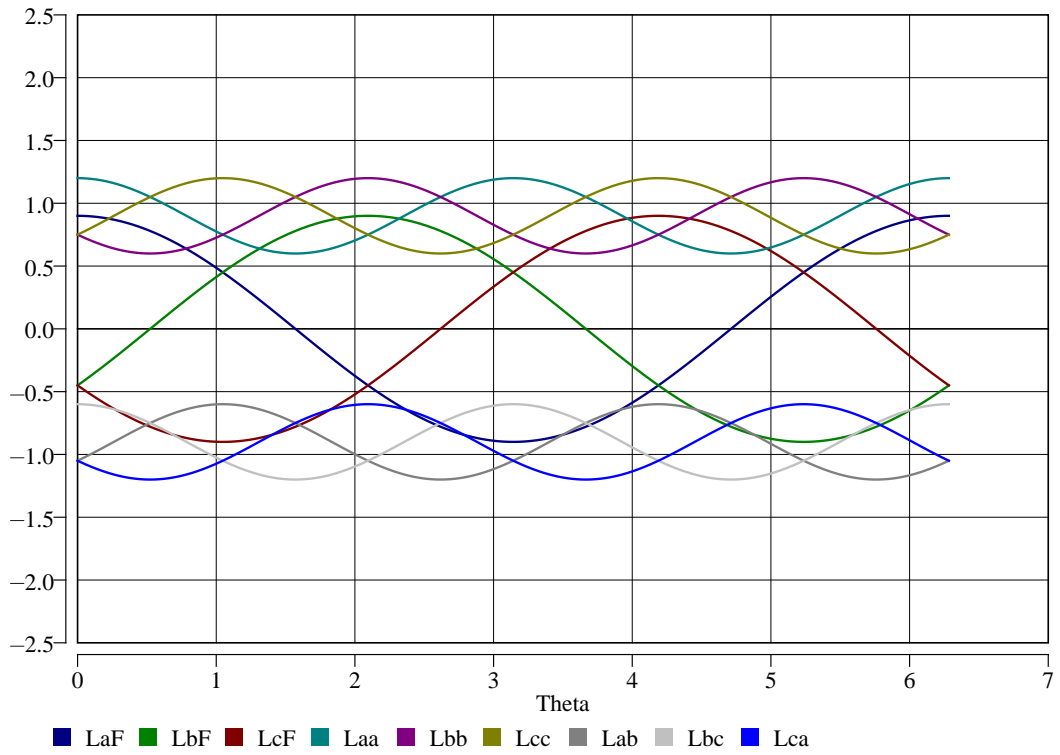
*TR;
:TR 0 10;
:PRINT(1000) FiaS, FibS, FicS, TokStatorX, TokStatorY,
: TokRotorX, TokRotorY, Fid, Fiq, FidX, FidY, FiqX, FiqY,
: TokStator,TokStatorUhel,TokRotor,TokRotorUhel,ZatUhel;
TR 0 2;
PRINT(1000) Laf, LbF, LcF, Laa, Lbb, Lcc, Lab, Lbc, Lca,
Ld, Lq, LaD, LbD, LcD, LaQ, LbQ, LcQ, Theta;
RUN;
*END;

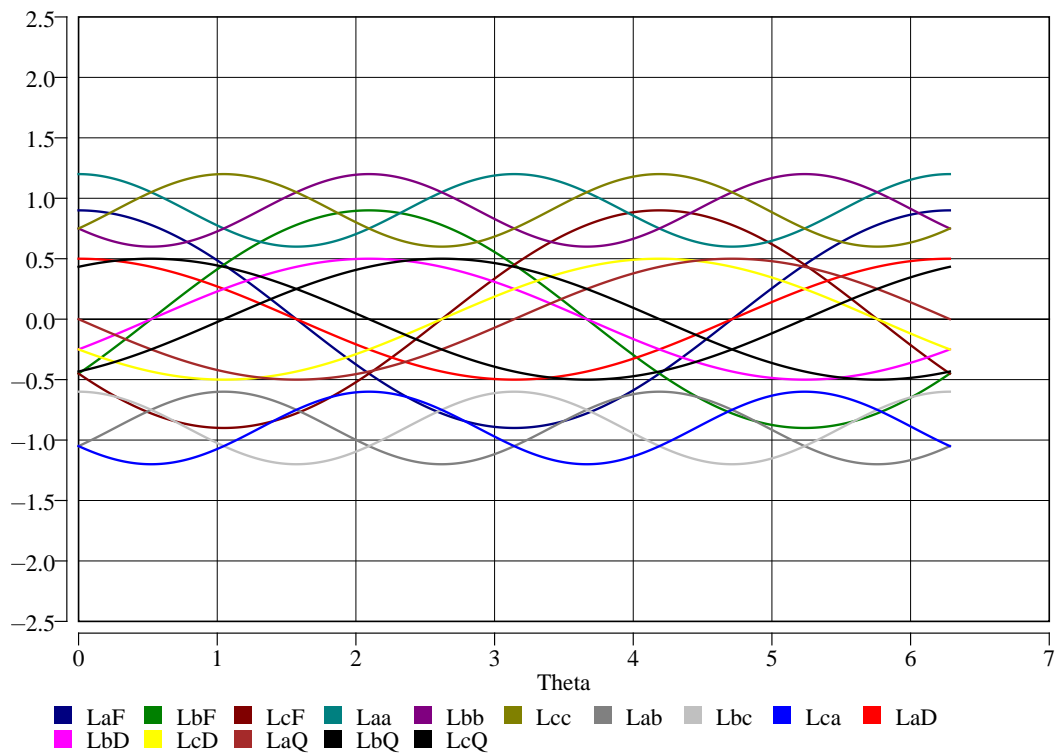
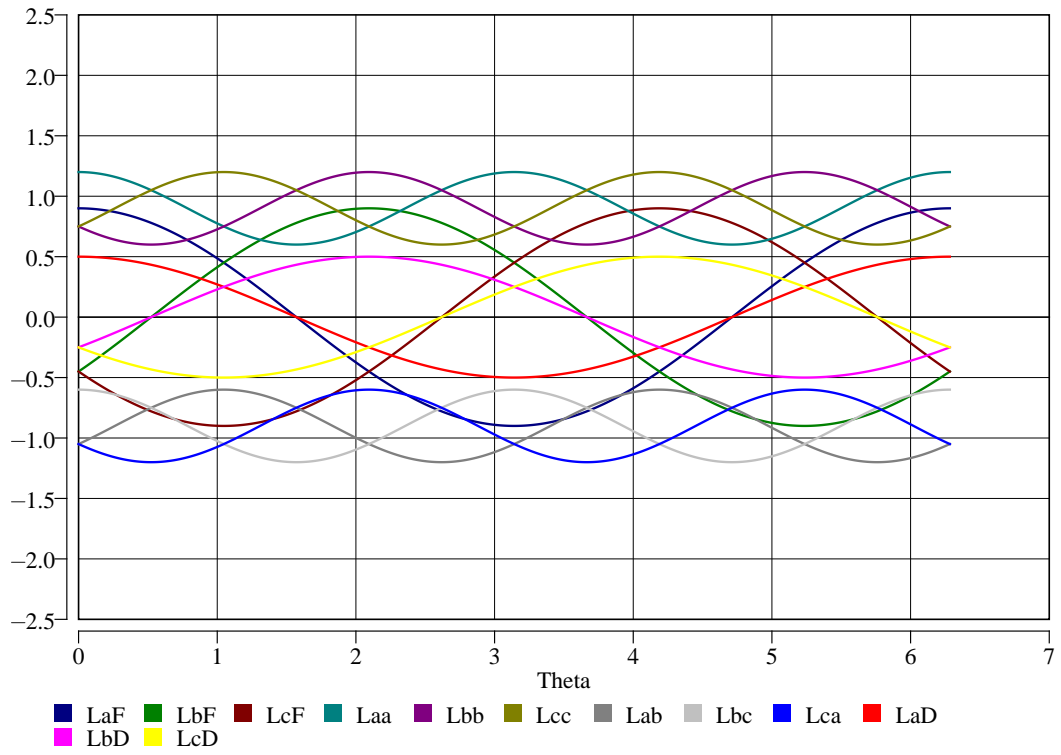
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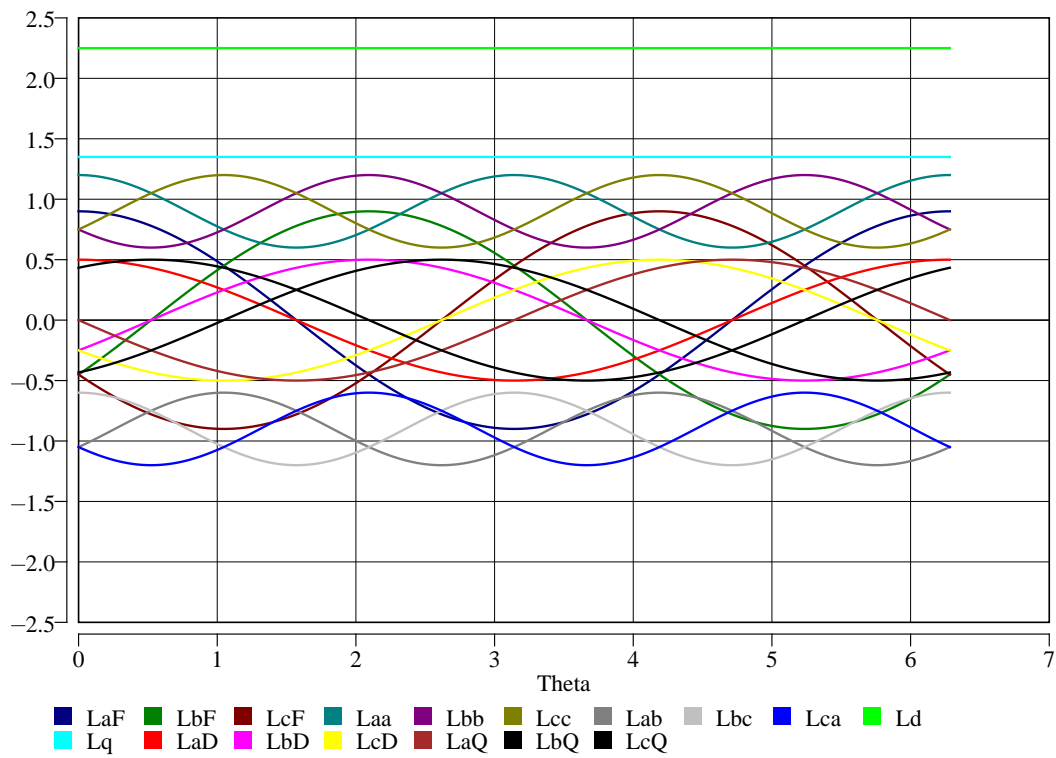












Origin

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Last Update

December 6, 2017