Code listing for determining RPA capacity in Ce

1   RPA setpoint of C_e

```
ring F=(0,k1,k2,k3,k4,k5,k6,k7,k8,k9,k10,k11,k12,k13,k14,k15,k16,p1,p2,p3,
mu,eta,theta,alpha),(Sp,C,P,R,Sr,Sh,H,HR,Cp,E,Sci,Cf,Ce,CL),(dp(11),dp(2));
```

```
poly f1 = mu - eta*Sci*C;
poly f2 = theta*Ce - eta*Sci*C;
poly f3 = k1*Sci - k2*Sr;
poly f4 = k1*Sci - k10*Sh;
poly f5 = p1*Sr - k11*R - k14*P*R;
poly f6 = k3*CL*R - k4*Cf;
poly f7 = k4*Cf - k5*Cp + k6*Ce;
poly f8 = k5*Cp - k6*Ce + k9*HR*H - k12*Ce - k7*Ce + k8*E;
poly f9 = k7*Ce - k8*E;
poly f10 = p2*Sh - k15*HR*Ce;
poly f11 = alpha - k9*HR*H;
poly f12 = k1*Sci - k13*Sp;
poly f13 = p3*Sp - k16*P;
```

```
ideal I = f1, f2, f3, f4, f5, f6, f7, f8, f9, f10, f11, f12, f13;
```

```
ideal GI = groebner(I);
GI;
```

```
lift(I,GI[1]);
```

```
syz(I);
```

The full code listings to determine the set point values of the RPA–variables C_e, C_p, C_f and E are available on https://github.com/RonelScheepers/RobustPerfectAdaptation.