In[25]:=
```
(* This script should calculate the Effective Hamiltonian in the rotating frame,
given a Hamiltonian in the lab frame H0, U the matrix of the
 transformation (see Hoberst diploma thesis, p. 18 plus appendix) *)

H0 = {{0, mu * Exp[I * (w * t + phi[t])]}, {mu * Exp[-I * (w * t + phi[t])], w}};
```

In[26]:=
```
U = {{1, 0}, {0, Exp[I * (wrot * t + phi[t])]}};
```

In[40]:=
```
(* Formula found in appendix Oberst*)

Refine[Simplify[U.H0.ConjugateTranspose[U] - I * U * D[ConjugateTranspose[U], t]],
 Assumptions → phi[t] ∈ Reals && t ∈ Reals && w ∈ Reals && wrot ∈ Reals]
```

Out[40]=
$$\left\{\left\{0,\ e^{i\,(t\,w-t\,\text{wrot})}\ \text{mu}\right\},\ \left\{e^{-i\,t\,(w-\text{wrot})}\ \text{mu},\ w-\text{Conjugate}'[t\ \text{wrot}+\text{phi}[t]]\ (\text{wrot}+\text{phi}'[t])\right\}\right\}$$