

## Form der Tidekurve

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In[1]:= << "\\Themis2\\system\\akprog\\Wolfram_Mathematica\\Zeitreihen\\MKToolsMM7_log.m"

In[2]:= mesTS = Get["D:\\Analyse\\Workshop_Partialtiden\\Materialien\\StPauli_01012006-31122006.mm"];
TSFrame[mesTS]

Out[3]= 01.01.2006 00:00:00 - 31.12.2006 23:50:00 --> 52560 Datensätze. Länge: 0a364d23h50m0s

In[4]:= clusterlistelbe = {"Q_1"}, {"O_1"}, {"M_1"}, {"P_1"}, {"S_1"}, {"K_1"}, {"neu04"}, {"neu05"}, {"neu07"}, {"3M{SK}_2"}, {"3M2S_2"},
{"OQ_2"}, {"EPS_2"}, {"neu09"}, {"O_2"}, {"MU_2"}, {"neu11"}, {"N_2"}, {"NU_2"}, {"unnamed1"}, {"unnamed2"}, {"M_2"}, {"unnamed3"}, {"DELTA_2"}, {"neu12"},
{"LABDA_2"}, {"neu13"}, {"L_2"}, {"T_2"}, {"S_2"}, {"R_2"}, {"K_2"}, {"MSN_2"}, {"2SM_2"}, {"neu14"}, {"NO_3"}, {"MO_3"}, {"M_3"},
{"MP_3"}, {"MK_3"}, {"neu15"}, {"neu16"}, {"2MNS_4"}, {"neu17"}, {"3MK_4"}, {"3MS_4"}, {"MN_4"}, {"neu18"}, {"neu19"}, {"M_4"},
{"SN_4"}, {"3MN_4"}, {"neu20"}, {"MS_4"}, {"MK_4"}, {"2MSN_4"}, {"S_4"}, {"SK_4"}, {"3MO_5"}, {"neu22"}, {"neu23"}, {"neu24"},
{"4MK_6"}, {"4MS_6"}, {"2MN_6"}, {"neu25"}, {"M_6"}, {"MSN_6"}, {"4MN_6"}, {"2MS_6"}, {"2MK_6"}, {"2SN_6"}, {"3MSN_6"}, {"2SM_6"}, {"MSK_6"},
{"neu26"}, {"5MK_8"}, {"5MS_8"}, {"3MN_8"}, {"neu27"}, {"M_8"}, {"2MSN_8"}, {"5MN_8"}, {"3MS_8"}, {"3MK_8"}, {"neu28"},
{"2{MS}_8"}, {"2MSK_8"}, {"4MN_10"}, {"M_10"}, {"neu29"}, {"4MS_10"}, {"4MK_10"}, {"neu30"}, {"neu31"}, {"M_12"}, {"5MS_12"}];
clusterlistelbe = {"M_2"}, {"M_4"}, {"M_6"}, {"O_1"}, {"K_1"}];
res = sFFTPScanCluster[mesTS, clusterlistelbe, WindowFunction -> Hanning]; // AbsoluteTiming
TableForm[res, TableHeadings -> {{}, {"Name", "Frequenz [Grad/h]", "Amplitude", "Phase [Grad]"}]}

Out[6]= {5.6498788, Null}

Out[7]/TableForm=
```

Name	Frequenz [Grad/h]	Amplitude	Phase [Grad]
M_2	28.9841	157.147	305.969
M_4	57.9682	18.1891	258.391
O_1	13.943	10.8732	89.2164
M_6	86.9523	8.84966	290.321
K_1	15.0411	8.10916	349.787

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In[8]:= anf = AbsoluteTime[{2006, 5, 4, 0, 0, 0}];
        endz = AbsoluteTime[{2006, 5, 6, 0, 1, 0}];
        pt1 = {"M_2"}; (* Initialisierung: {"M_2"} oder res[[All,1]] *)
        zeigept = res[[Ordering[res[[All, 3]], All, Greater]]];
        showdiff = True;
        (* --- *)
        MW = TSLowPassFilter[mestS, 13];
        mesohneMWTS = Transpose[{mesTS[[All, 1]], mestS[[All, 2]] - MW[[All, 2]]}];
        tmpTS = TSSelect[mesohneMWTS, anf, endz];
        (* --- *)
        CheckBoxBar[Dynamic[pt1], zeigept[[All, 1]]]
        (* --- *)
        Manipulate[
          ptsynthesis = Table[Select[zeigept[[All, {1, 3, 4}]], (#[[1]] == pt1[[i]]) &][[1]], {i, Length[pt1]}];
          synTS = PTSynthese[ptsynthesis, mestS[[1, 1]], Anfangszeit → anf, Endzeit → endz, Sampledauer → 10 * 60];
          diffTS = Transpose[{tmpTS[[All, 1]], tmpTS[[All, 2]] - synTS[[All, 2]]};
          rmse = Plus@@Abs[diffTS[[All, 2]]];
          sarr = If[showdiff, {tmpTS, synTS, diffTS}, {tmpTS, synTS}];
          TSListPlotArray[sarr, LegendEntryList → Take[{"Messung", "Synthese", "Differenz"}, Length[sarr]],
            ColorList → {Black, Blue, Red}, PLabel → "RMSE: " <> ToString[rmse], ISize → 700][[1]]
          , {{showdiff, False, "Zeige Differenz"}, {True, False}}]

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Out[16]=  M\_2  M\_4  O\_1  M\_6  K\_1

