In[]:=
```
(*数据*)
mv = 2433;
mf = 4866;
k = 80 000;
g = 9.8;
r = 1025 * g * Pi;
w = 1.4005;
ma = 1335.535;
μ = u = 656.3616;
f = 6250;
v = 10 000;
```

In[]:=
```
(*xx1'=(-k x1+k x2- v (xx1-xx2)Sqrt[Abs[xx1[t]-xx2[t]]])/mv;
xx2'=(-k x2+k x1+v (xx1-xx2)Sqrt[Abs[xx1[t]-xx2[t]]]-μ xx2+f Cos[w t]-r x2)/
  (mf+ma);
x1'=xx1;
x2'=xx2;*)
jacobian =
 N[D[{xx1, xx2, (-k x1 + k x2 - v (xx1 - xx2) Sqrt[xx1 - xx2]) / mv, (-k x2 + k x1 +
       v (xx1 - xx2) Sqrt[xx1 - xx2] - μ xx2 - r x2) / (mf + ma)}, {{x1, x2, xx1, xx2}}]]
```

Out[]=
$$\left\{\{0.,\ 0.,\ 1.,\ 0.\},\ \{0.,\ 0.,\ 0.,\ 1.\},\ \left\{-32.8812,\ 32.8812,\ -6.16523\ \sqrt{xx1-1.\ xx2},\ 6.16523\ \sqrt{xx1-1.\ xx2}\right\},\ \left\{12.9,\ -17.9887,\ 2.41876\ \sqrt{xx1-1.\ xx2},\ 0.00016125\times\left(-656.362-15\,000.\ \sqrt{xx1-1.\ xx2}\right)\right\}\right\}$$

```
jacobian /. {xx1 → 1, xx2 → -1} (*速度区间在正负一内,速度差最大求最大刚度*)
```

Out[]=
$$\{\{0.,\ 0.,\ 1.,\ 0.\},\ \{0.,\ 0.,\ 0.,\ 1.\},\ \{-32.8812,\ 32.8812,\ -8.71895,\ 8.71895\},\ \{12.9,\ -17.9887,\ 3.42064,\ -3.52648\}\}$$