

```

In[ ]:= (*定义数据点*)
data = {{321, 0.662}, {558, 1.173}, {634, 1.332}};

(*线性回归拟合*)
fit = LinearModelFit[data, x, x];
      [线性拟合模型]

(*新的数据点*)
newData = {310, 275, 223, 179, 147, 121};

(*计算能量*)
calculatedEnergies = fit[#] & /@ newData;

(*输出新数据点及其对应的能量*)
newDataWithEnergies = Transpose[{newData, calculatedEnergies}]
      [转置]

(*获取拟合方程*)
fitFunction = fit["BestFit"];

(*绘制数据点和拟合直线，并标出数据点的数值和拟合方程*)
Show[ListPlot[data, PlotStyle → {Red, PointSize[Large]}, AxesLabel → {"1", "MeV"}],
      [显示] [绘制点集] [绘图样式] [红色] [点的大小] [大] [坐标轴标签]
      Plot[fitFunction, {x, 300, 650}, PlotStyle → Blue],
      [绘图] [绘图样式] [蓝色]
      PlotLabel → "数据点及拟合直线", Epilog →
      [绘图标签] [绘制主图后绘制的图形]
      {Text["(" <> ToString[data[[1, 1]] <> ", " <> ToString[data[[1, 2]] <> ")"], {312, 0.662},
      [文本] [转换为字符串] [转换为字符串]
      {-1, -1}], Text["(" <> ToString[data[[2, 1]] <> ", " <> ToString[data[[2, 2]] <> ")"],
      [文本] [转换为字符串] [转换为字符串]
      {558, 1.173}, {-1, -1}], Text["(" <> ToString[data[[3, 1]] <>
      [文本] [转换为字符串]
      ", " <> ToString[data[[3, 2]] <> ")"], {631, 1.332}, {-1, -1}], Text[
      [转换为字符串] [文本]
      "拟合直线: y = " <> ToString[Normal[fitFunction], InputForm], {450, 1.2}, {0, 1}]]]
      [转换为…] [转换为普通表达式] [输入格式]

(*计算误差分析*)
Print["拟合方程: ", fitFunction];
[打印]

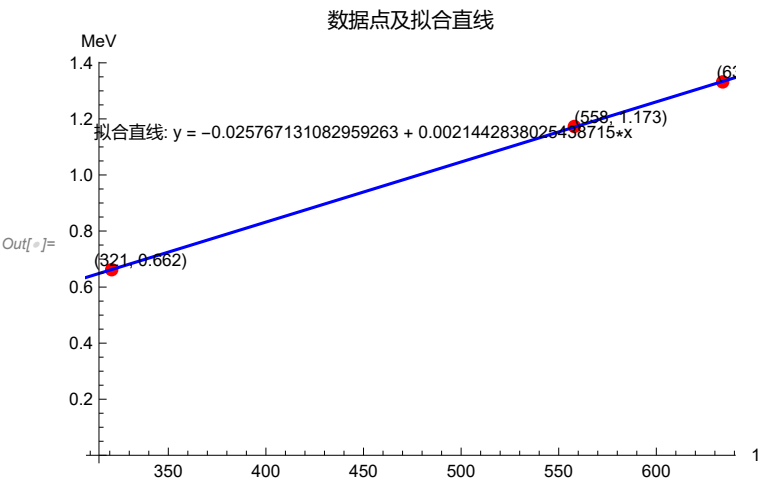
Print["拟合参数: ", fit["ParameterTable"]];
[打印]

Print["决定系数R²: ", fit["RSquared"]];
[打印]

Print["标准误差: ", fit["EstimatedVariance"]];
[打印]

Out[ ]:= {{310, 0.638961}, {275, 0.563911}, {223, 0.452408},
          {179, 0.35806}, {147, 0.289443}, {121, 0.233691}}

```



拟合方程: $-0.0257671 + 0.00214428 \cdot x$

拟合参数:

	Estimate	Standard Error	t-Statistic	P-Value
1	-0.0257671	0.00651454	-3.95532	0.157649
x	0.00214428	0.0000124883	171.703	0.00370763

决定系数 R^2 : 0.999966

标准误差: 8.31327×10^{-6}

In[]:= **N[2 325 377 / 5 965 611, 15]**
[数值运算](#)

Out[]:= 0.389796954578500

In[]:= $\left(\text{N}\left[\frac{2\,325\,377}{5\,965\,611}, 15\right] - 0.39 \right) / 0.39$
[数值运算](#)

Out[]:= -0.000520629