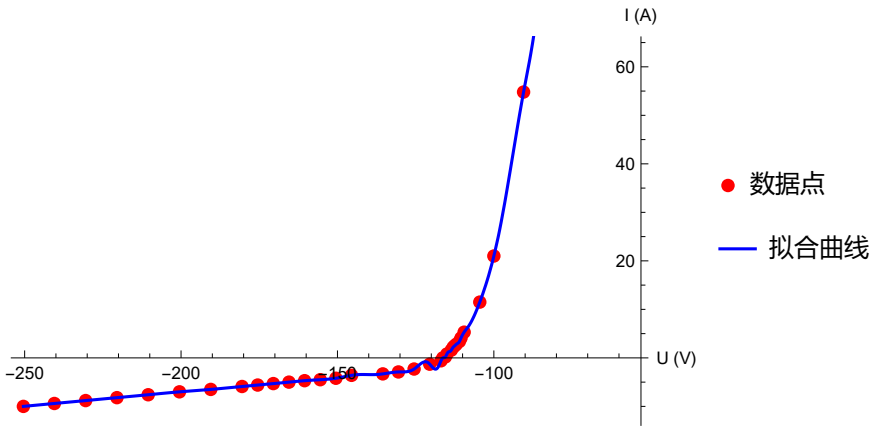
In[203]:=
```
(*定义数据数组*)
U = -1 * {250.4, 240.5, 230.5, 220.5, 210.5, 200.5, 190.5, 180.5, 175.5, 170.5,
    165.5, 160.5, 155.5, 150.5, 145.5, 135.5, 130.5, 125.5, 120.5,
    116.9, 116.3, 115.5, 115.0, 113.6, 113.0, 112.5, 112.0, 111.0,
    110.5, 109.5, 104.5, 100.0, 90.5, 80.5, 70.0, 65.0, 60.5, 57.0};
I0 = {-10.0, -9.4, -8.8, -8.2, -7.6, -7.0, -6.5, -5.9, -5.6, -5.3, -5.0, -4.7,
   -4.5, -4.2, -3.6, -3.3, -2.9, -2.3, -1.3, -0.6, 0, 0.2, 0.8, 1.6, 2.2, 2.5,
   2.8, 3.4, 4.1, 5.3, 11.5, 21.0, 54.8, 132.4, 476.7, 838.6, 1435.8, 1978.2};

(*绘制 I-U 散点图*)
scatterPlot = ListPlot[Transpose[{U, I0}], PlotStyle → {Red, PointSize[Large]},
   AxesLabel → {"U (V)", "I (A)"}, PlotLegends → {"数据点"}];

(*样条拟合*)
splineFit = Interpolation[Transpose[{U, I0}], Method → "Spline"];

(*绘制 I-U 样条拟合曲线*)
splinePlot = Plot[splineFit[x], {x, Min[U], Max[U]},
   PlotStyle → Blue, PlotLabel → "I-U 样条拟合曲线", PlotLegends → {"拟合曲线"}];

(*显示散点图和拟合曲线*)
plot = Show[scatterPlot, splinePlot];

(*显示图像*)
plot
```

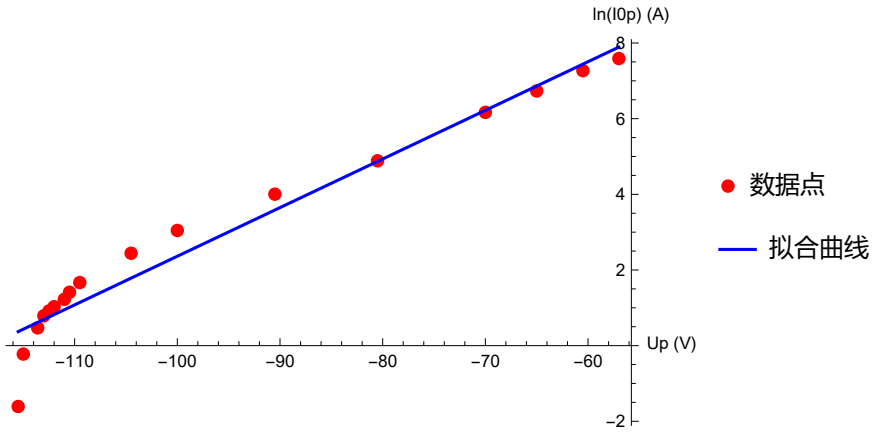
Out[209]=



In[301]:=
```
(*定义数据数组*)
Up0 = -1 * {115.5, 115.0, 113.6, 113.0, 112.5, 112.0, 111.0, 110.5, 109.5, 104.5,
    100.0, 90.5, 80.5, 70.0, 65.0, 60.5, 57.0};
I0p = {0.2, 0.8, 1.6, 2.2, 2.5, 2.8, 3.4, 4.1,
```

```
    5.3, 11.5, 21.0, 54.8, 132.4, 476.7, 838.6, 1435.8, 1978.2};

(*对 I0p 取自然对数*)
lnI0p = Log[I0p];
        对数

(*绘制 Up0 与 lnI0p 的散点图*)
scatterPlot = ListPlot[Transpose[{Up0, lnI0p}], PlotStyle → {Red, PointSize[Large]},
              绘制点集  转置                    绘图样式       红色 点的大小    大
    AxesLabel → {"Up (V)", "ln(I0p) (A)"}, PlotLegends → {"数据点"}];
    坐标轴标签                              绘图的图例

(*线性回归拟合*)
fit = LinearModelFit[Transpose[{Up0, lnI0p}], x, x];
      线性拟合模型       转置

(*获取拟合方程和参数*)
fitFunction = fit["BestFit"];
slope = fit["BestFitParameters"][[2]];
intercept = fit["BestFitParameters"][[1]];

(*获取相关系数*)
r = fit["AdjustedRSquared"];
stdError = fit["EstimatedVariance"];

(*绘制拟合直线*)
fitPlot = Plot[fitFunction, {x, Min[Up0], Max[Up0]},
          绘图                最小值      最大值
    PlotStyle → Blue, PlotLabel → "线性拟合曲线", PlotLegends → {"拟合曲线"}];
    绘图样式       蓝色  绘图标签                 绘图的图例

(*显示散点图和拟合曲线*)
Show[scatterPlot, fitPlot]
显示

(*输出结果*)
Print["拟合方程: ", fitFunction]
打印
Print["相关系数 (R²): ", r]
打印
Print["拟合参数: "]
打印
Print[fit["ParameterTable"]]
打印
Print["斜率: ", slope]
打印
Print["截距: ", intercept]
打印
Print["标准误差: ", stdError]
打印
```

Out[312]=



拟合方程：15.2188 + 0.128557 x

相关系数（R^2）：0.947773

拟合参数：

	Estimate	Standard Error	t-Statistic	P-Value
1	15.2188	0.743312	20.4743	2.24602×10^{-12}
x	0.128557	0.00753154	17.0692	3.09195×10^{-11}

斜率：0.128557

截距：15.2188

标准误差：0.411726

In[358]:=
```
Te = 5040 / 0.1285571495272443
```

Out[358]= 39 204.4