

Sovrapposizione di due gaussiane

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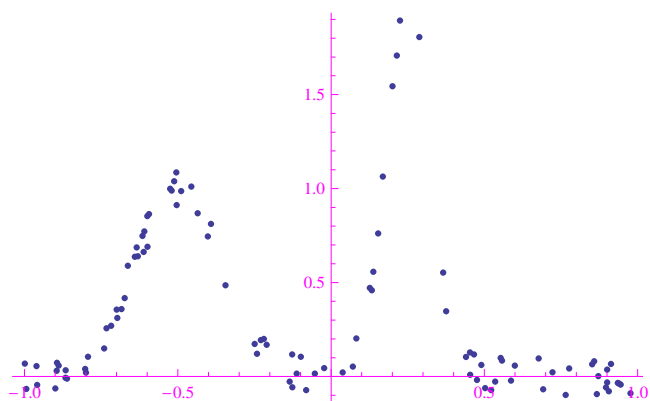
```
In[1]:= SetOptions[
  {
    Plot,
    ListPlot
  },
  AxesStyle -> Directive[
    Hue[5 / 6],
    8
  ],
  FrameStyle -> Directive[
    Hue[5 / 6],
    8
  ]
];

In[2]:= gauss = A1 * Exp[-(B1 * (x - x1))^2] + A2 * Exp[-(B2 * (x - x2))^2];

In[3]:= mydata = Block[
  {
    A1 = 1,
    B1 = 5,
    x1 = -0.5,
    A2 = 2,
    B2 = 10.,
    x2 = .25,
    x = Sort[
      RandomReal[{-1, 1}, 100]
    ]
  },
  Transpose[
    {x, gauss + RandomReal[{-0.1, 0.1}, 100]}
  ]
];

In[4]:= p0 = ListPlot[mydata]
```

Out[4]=



2 | fit_g.nb

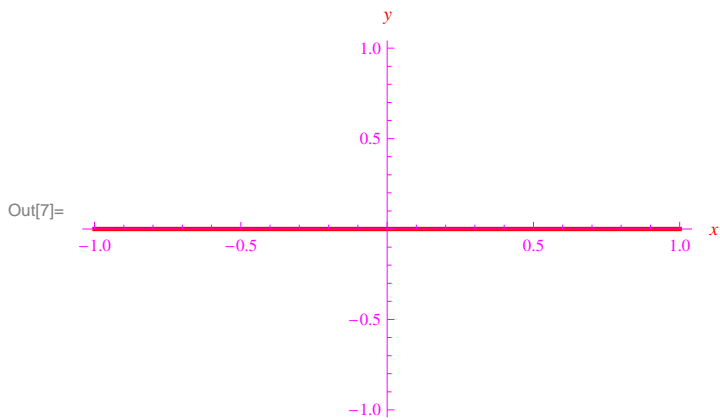
```
In[5]:= myfit = FindFit[
  mydata,
  gauss,
  {A1, B1, x1, A2, B2, x2},
  x
]
```

Out[5]= {A1 → 11.4642, B1 → 184.221, x1 → -52.9446, A2 → -11.4428, B2 → -183.432, x2 → 55.3253}

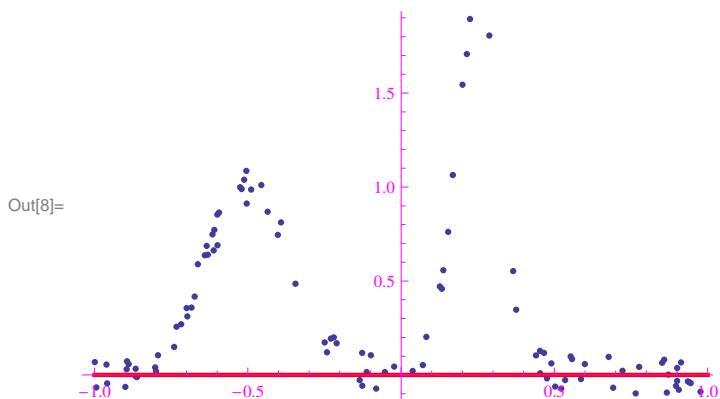
```
In[6]:= gauss1[x_] = Evaluate[gauss /. myfit]
```

Out[6]= $-11.4428 e^{-33.647.3 (-55.3253+x)^2} + 11.4642 e^{-33.937.5 (52.9446+x)^2}$

```
In[7]:= p = Plot[
  gauss1[x],
  {x, -1, 1},
  PlotStyle → Directive[Thick, Red],
  AxesLabel → {
    Style["x", Small, Red, Italic],
    Style["y", Small, Red, Italic]
  }
]
```



```
In[8]:= Show[p0, p]
```



```
In[9]:= newfit = FindFit[
  mydata,
  gauss,
  {
    {A1, 1}, {B1, 5}, {x1, -.5},
    {A2, 2}, {B2, 10}, {x2, .25}
  },
  x
];

In[10]:= Show[
  {p0,
  Plot[Evaluate[gauss /. newfit], {x, -1, 1},
  PlotStyle -> Red
  ]
},
  PlotRange -> {-0.8, 2.1},
  AxesLabel -> {
    Style["x", Small, Red, Italic],
    Style["y", Small, Red, Italic]
  }
]
```

Out[10]=

