In[ ]:=
```
Charting`$InteractiveHighlighting = False
```
Out[ ]=
```
False
```

Coarse mesh with 14 samples

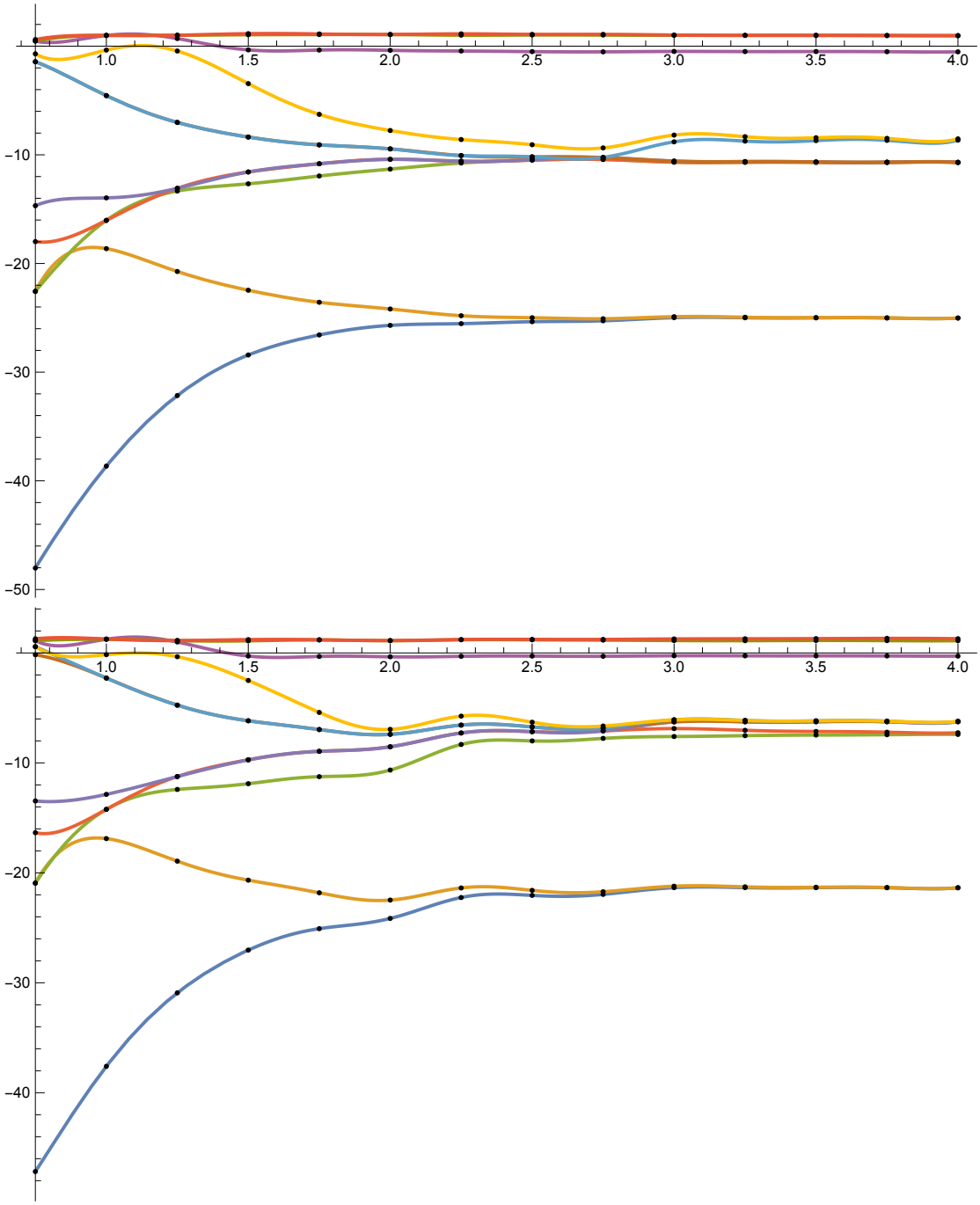
In[ ]:=
```
data =
  Dataset[Import[ToString@StringForm["/Users/giovannigravili/Library/Mobile
              Documents/com~apple~CloudDocs/LM
              MANO/Computational material physics /Cluster
              data/P2/outputO2/output``.csv", #], "Table",
          "HeaderLines" → 0, "FieldSeparators" → "\t", "NumberPoint" → ".",
          CharacterEncoding → "UTF8"]][All, Range[1, 11]][All,
      Rule @@@ Transpose[{ToString@StringForm["Band ``", #] & /@ Range[1, 11] //
          Evaluate, Range[1, 11]}] // Association] & /@ {"Up", "Down"};
```

In[ ]:=
```
data2 = Table[Transpose[
       {Range[0.75, 4, 0.25], di[All, ToString@StringForm["Band ``", #]]} //
        Normal] & /@ Range[1, 11], {di, data}];
```

In[ ]:=
```
Range[0.75, 4, 0.25] // Length
```
Out[ ]=
```
14
```

In[ ]:=
```
Table[Interpolation[#, InterpolationOrder → 5, Method → "Spline"][d] & /@ di //
    Plot[#, {d, 0.75, 4}, ImageSize → Large, Epilog → {Point[#] & /@ di},
      PlotRange → All] &, {di, data2}] // TableForm
```

Out[ ]//TableForm=



In[ ]:=
```
data =
 Dataset[Import[ToString@StringForm["/Users/giovannigravili/Library/Mobile
          Documents/com~apple~CloudDocs/LM MANO/Computational material
          physics /Cluster data/P2/outputO2/outputETOT.csv"], "Table",
       "HeaderLines" → 0, "FieldSeparators" → "\t", "NumberPoint" → ".",
       CharacterEncoding → "UTF8"]][All, Range[1, 1]][All,
  Rule @@@ Transpose[{ToString@StringForm["Band ``", #] & /@ Range[1, 1] //
       Evaluate, Range[1, 1]}] // Association]
```

Out[ ]=

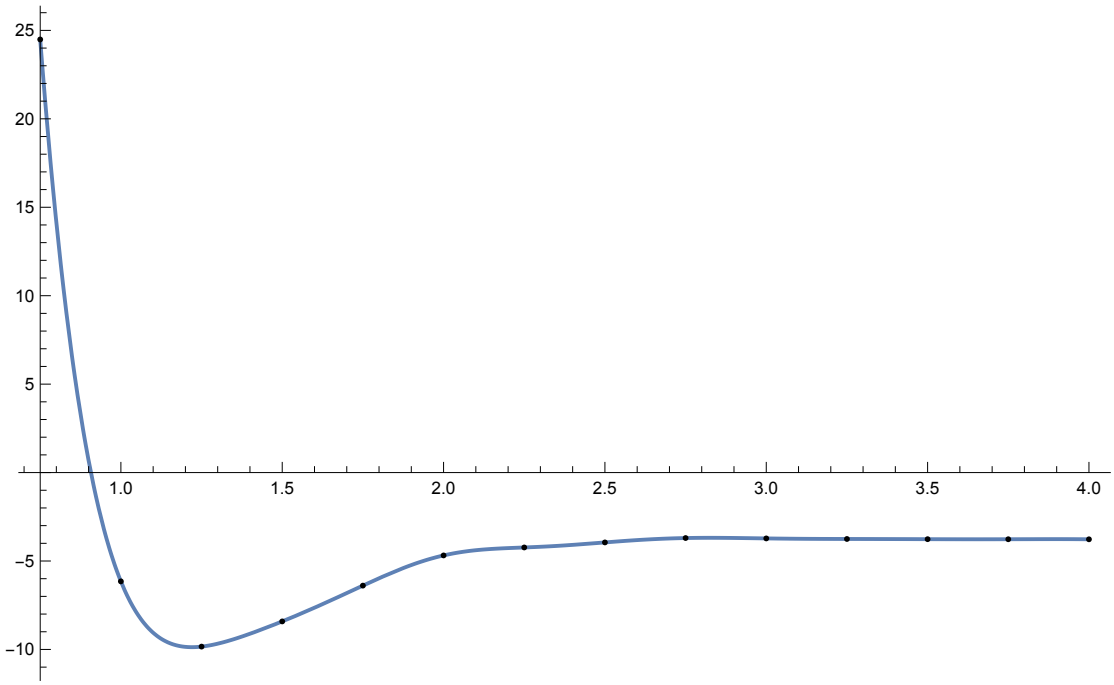
Band 1
24.4871
−6.15164
−9.83918
−8.4155
−6.39093
−4.68474
−4.23425
−3.94909
−3.70156
−3.72284
−3.75421
−3.76573
−3.76886
−3.77241

In[ ]:=
```
data2 = Transpose[
      {Range[0.75, 4, 0.25], data[All, ToString@StringForm["Band ``", #]]} //
       Normal] & /@ Range[1, 1] // First
```

Out[ ]=
```
{{0.75, 24.4871}, {1., -6.15164}, {1.25, -9.83918},
 {1.5, -8.4155}, {1.75, -6.39093}, {2., -4.68474}, {2.25, -4.23425},
 {2.5, -3.94909}, {2.75, -3.70156}, {3., -3.72284},
 {3.25, -3.75421}, {3.5, -3.76573}, {3.75, -3.76886}, {4., -3.77241}}
```

```
In[•]:= Interpolation[data2, InterpolationOrder → 5, Method → "Spline"][d] //
         Plot[#, {d, 0.75, 4}, ImageSize → Large,
           Epilog → {Point[#] & /@ data2}, PlotRange → All] &
```

Out[•]=




```
In[•]:= ListLinePlot[data2, PlotRange → All, ImageSize → Large]
```

Finer mesh with 80 samples

```
In[•]:= data =
          Dataset[Import[ToString@StringForm["/Users/giovannigravili/Library/Mobile
                    Documents/com~apple~CloudDocs/LM
                    MANO/Computational material physics /Cluster
                    data/P2/outputO2/output``.csv", #], "Table",
                "HeaderLines" → 0, "FieldSeparators" → "\t", "NumberPoint" → ".",
                CharacterEncoding → "UTF8"]][All, Range[1, 11]][All,
             Rule @@@ Transpose[{ToString@StringForm["Band ``", #] & /@ Range[1, 11] //
                  Evaluate, Range[1, 11]}] // Association] & /@ {"FineUp", "FineDown"};
```

```
In[•]:= data = Table[Transpose[
            {Range[0.05, 4.0, 0.05], di[All, ToString@StringForm["Band ``", #]]} //
             Normal] & /@ Range[1, 11], {di, data}];
```

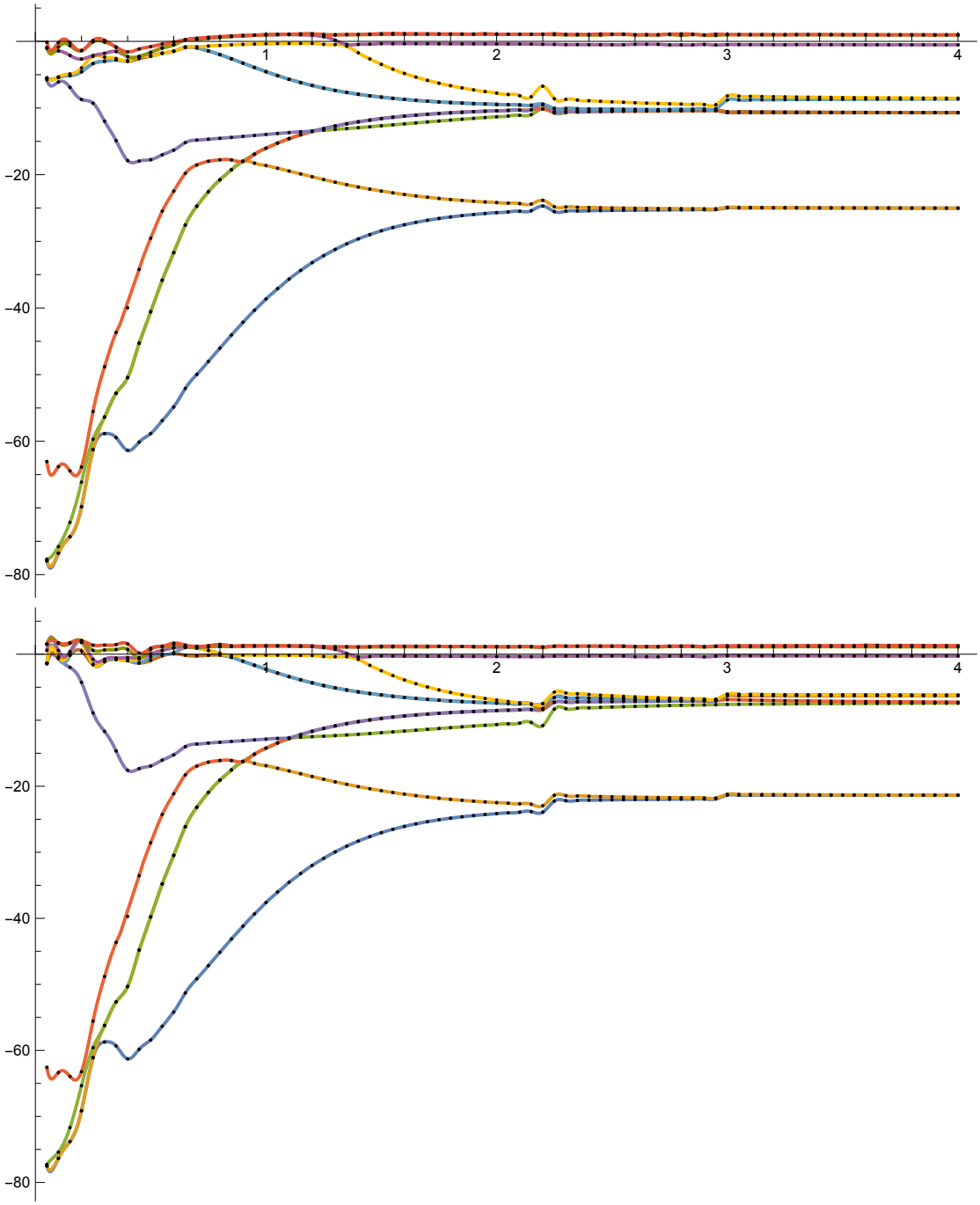
```
In[•]:= Range[0.05, 4.0, 0.05] // Length
```

Out[•]=

```
80
```

```
In[ ]:= Table[Interpolation[#, InterpolationOrder → 5, Method → "Spline"][d] & /@ di //
          Plot[#, {d, 0.05, 4}, Epilog → {PointSize[Small], Point[#] & /@ di},
            ImageSize → Large, PlotRange → All] &, {di, data}] // TableForm
```

Out[ ]//TableForm=



Ultra-fine mesh with 400 samples

In[ ]:=
```
data =
  Dataset[Import[ToString@StringForm["/Users/giovannigravili/Library/Mobile
            Documents/com~apple~CloudDocs/LM
            MANO/Computational material physics /Cluster
            data/P2/outputO2/output``.csv", #], "Table",
          "HeaderLines" → 0, "FieldSeparators" → "\t", "NumberPoint" → ".",
          CharacterEncoding → "UTF8"]][All, Range[1, 11]][
        All, Rule @@@ Transpose[{ToString@StringForm["Band ``", #] & /@
            Range[1, 11] // Evaluate, Range[1, 11]}] //
         Association] & /@ {"UltraFineUp", "UltraFineDown"};
```

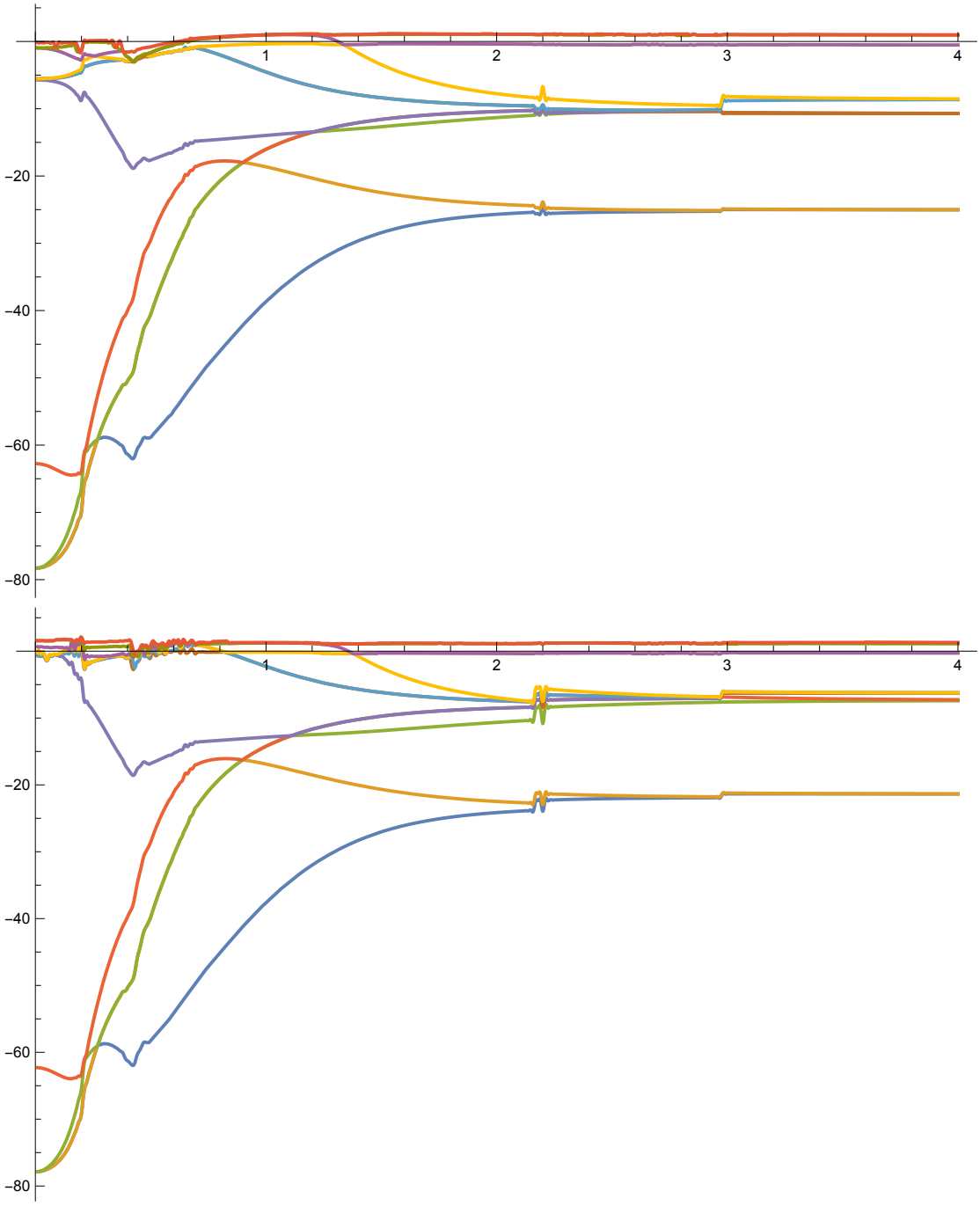
In[ ]:=
```
data = Table[Transpose[
       {Range[0.01, 4.0, 0.01], di[All, ToString@StringForm["Band ``", #]]} //
        Normal] & /@ Range[1, 11], {di, data}];
```

In[ ]:=
```
Range[0.01, 4.0, 0.01] // Length
```

Out[ ]=
```
400
```

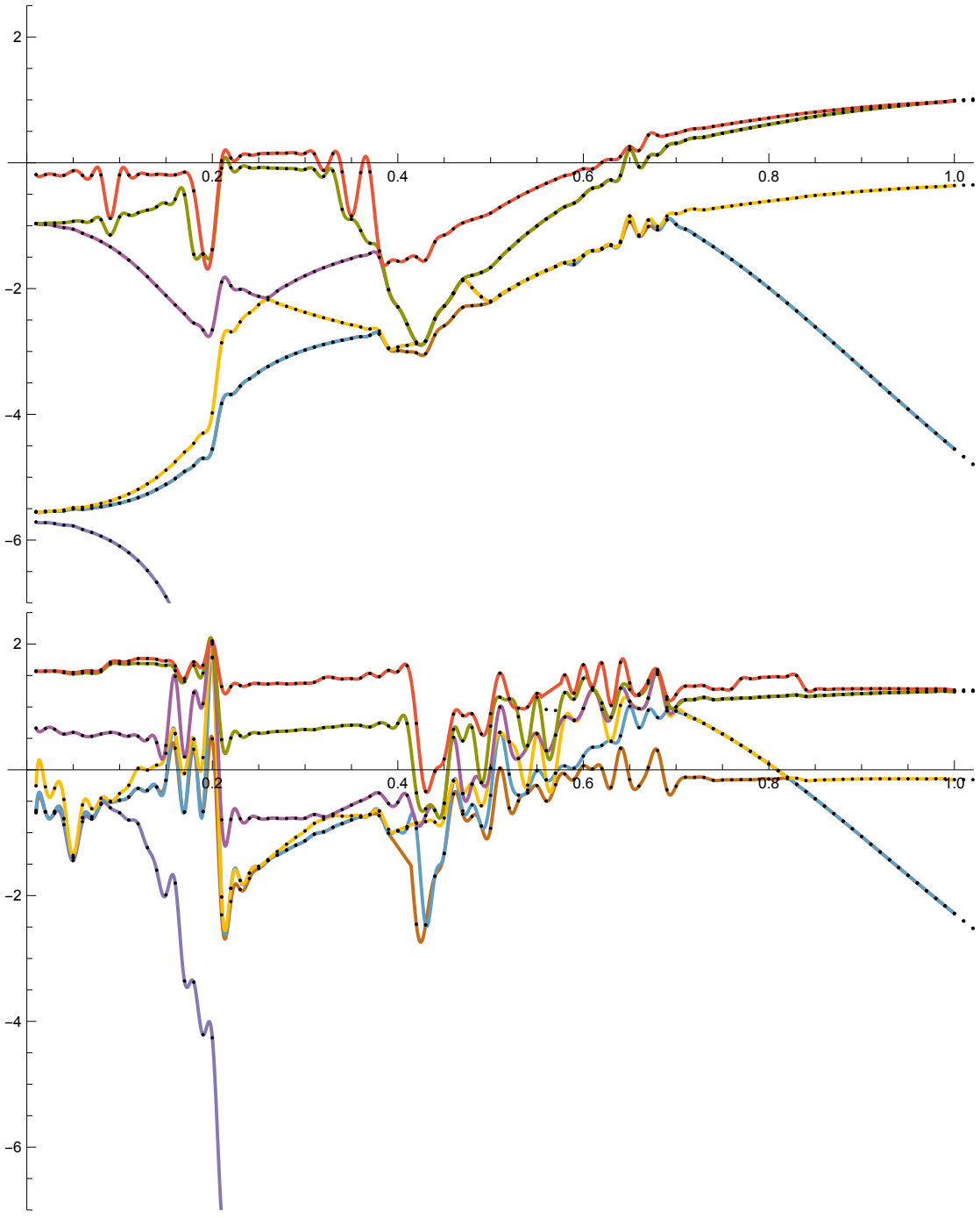
```
In[ ]:= Table[Interpolation[#, InterpolationOrder → 5, Method → "Spline"][d] & /@ di //
          Plot[#, {d, 0.01, 4}, ImageSize → Large, PlotRange → All] &,
        {di, data}] // TableForm
```

Out[ ]//TableForm=



```
In[ ]:= Table[Interpolation[#, InterpolationOrder → 5, Method → "Spline"][d] & /@ di //
          Plot[#, {d, 0.01, 1}, Epilog → {PointSize[Small], Point[#] & /@ di},
            ImageSize → Large, PlotRange → {-7, 2.5}] &, {di, data}] // TableForm
```

Out[ ]//TableForm=



Mega-zoom into the interval [0, 1] with 1000 samples

```
In[ ]:= Range[0.001, 1.0, 0.001] // Length
```

Out[ ]=

```
1000
```

```
In[•]:= data =
          Dataset[Import[ToString@StringForm["/Users/giovannigravili/Library/Mobile
                      Documents/com~apple~CloudDocs/LM
                      MANO/Computational material physics /Cluster
                      data/P2/outputO2/output``.csv", #], "Table",
                    "HeaderLines" → 0, "FieldSeparators" → "\t", "NumberPoint" → ".",
                    CharacterEncoding → "UTF8"]][All, Range[1, 11]][
                 All, Rule @@@ Transpose[{ToString@StringForm["Band ``", #] & /@
                       Range[1, 11] // Evaluate, Range[1, 11]}] //
                  Association] & /@ {"MegaFineUp", "MegaFineDown"};

In[•]:= data = Table[Transpose[
                  {Range[0.001, 1.0, 0.001], di[All, ToString@StringForm["Band ``", #]]} //
                   Normal] & /@ Range[1, 11], {di, data}];
```

```
In[ ]:= ListLinePlot[#, ImageSize → Full,
          PlotStyle → AbsoluteThickness[0.5], PlotRange → {-7, 3}] & /@ data // TableForm
```

Out[ ]//TableForm=