

```

d = {{1, 1}, {2, 4}, {5, 1}, {8, -4},
      {9, -3}, {10, 1}, {11, 1}, {11.1, 2}, {11.4, 4}, {12, 0}};
d = {#[[2]], #[[1]]} & /@ hedgeI[[1 ;; 120]]; dt = d;
n = Length[d] - 1; (*Anzahl der Punkte - 1*)
p = 10; (*Ordnung*)
m = n + 1 + p; (*Anzahl der Knots - 1*)
(*Knot-Erzeugung*)
u = Join[Table[0, {i, p}], Table[i / (n + 1 - p), {i, 0, n + 1 - p}], Table[1, {i, p}]];
w = Table[1, {i, n + 1}];

P[t0_] := Module[{a, k, j = m, i, t = t0, u = u, d = d * w, p = p, n = n, m = m, w = w},
  (* j Bestimmung *)
  If[t == 0, j = 1,
    While[t <= u[[j]], j--];
  If[j <= p, j = p + 1];

  (*Gewichtung*)

  (*Berechnung*)
  For[k = 1, k <= p, k++,
    For[i = j - p + k, i <= j, i++,
      a = (t - u[[i]]) / (u[[i + p + 1 - k]] - u[[i]]);
      d[[i]] = (1 - a) d[[i - 1]] + a d[[i]];
      w[[i]] = (1 - a) w[[i - 1]] + a w[[i]];
    ];
  ];
  d[[j]] / w[[j]]
]

w = (M[Length[d]].Transpose[d][[2]]); w = (0.01 + w / Max[w]) ^ 2;

d = {}; c = 10; AppendTo[d, dt[[1]]];
For[i = 2, i < Length[dt], i++,
  fs = (dt[[i + 1, 2]] - dt[[i - 1, 2]]) / 2 (n - 1);
  k = (-2 dt[[i, 2]] + dt[[i + 1, 2]] + dt[[i - 1, 2]]) (n - 1) ^ 2 / (1 + fs ^ 2) ^ (3 / 2);
  AppendTo[d, dt[[i]] + {ArcTan[c k] / Pi / (n - 1), 0}];
]
AppendTo[d, dt[[Length[dt]]]];

tt = Table[P[x], {x, 0, 1, 0.001}];

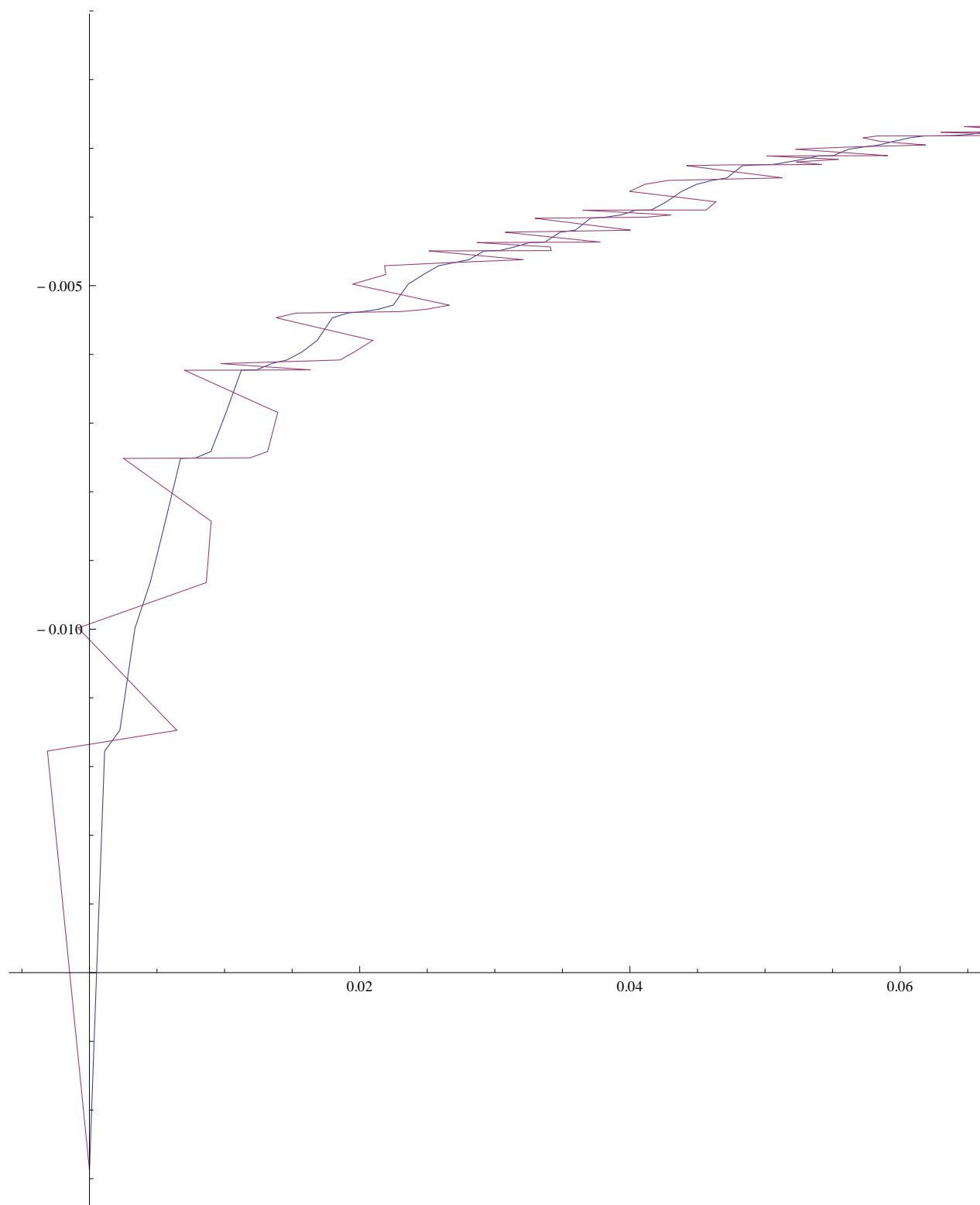
q = Total[1 / n / Variance[Transpose[dt][[2]]] (#[[2]] - IP[#[[1]]) ^ 2 & /@ dt]

0.00690507

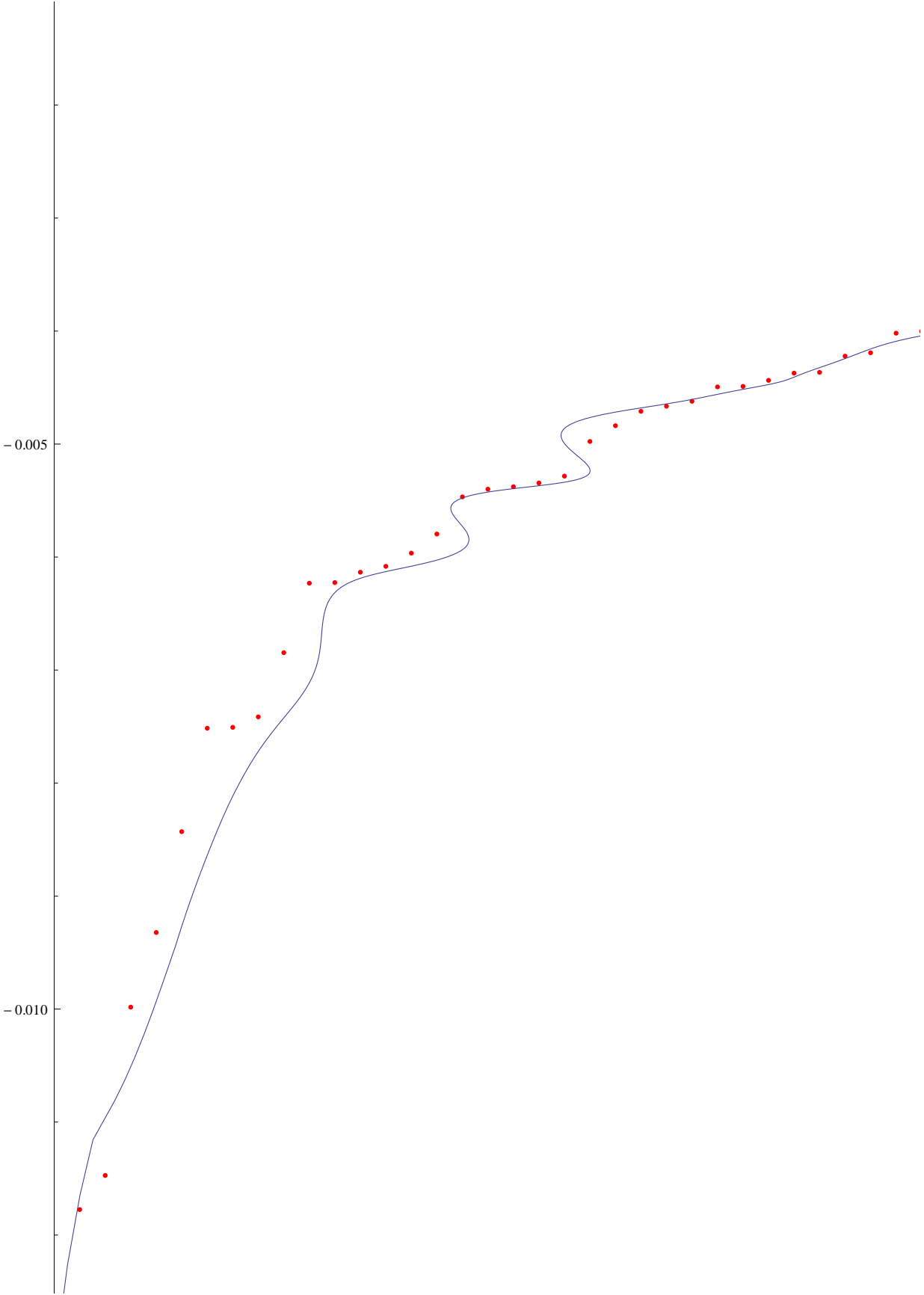
0.003453418910958665`

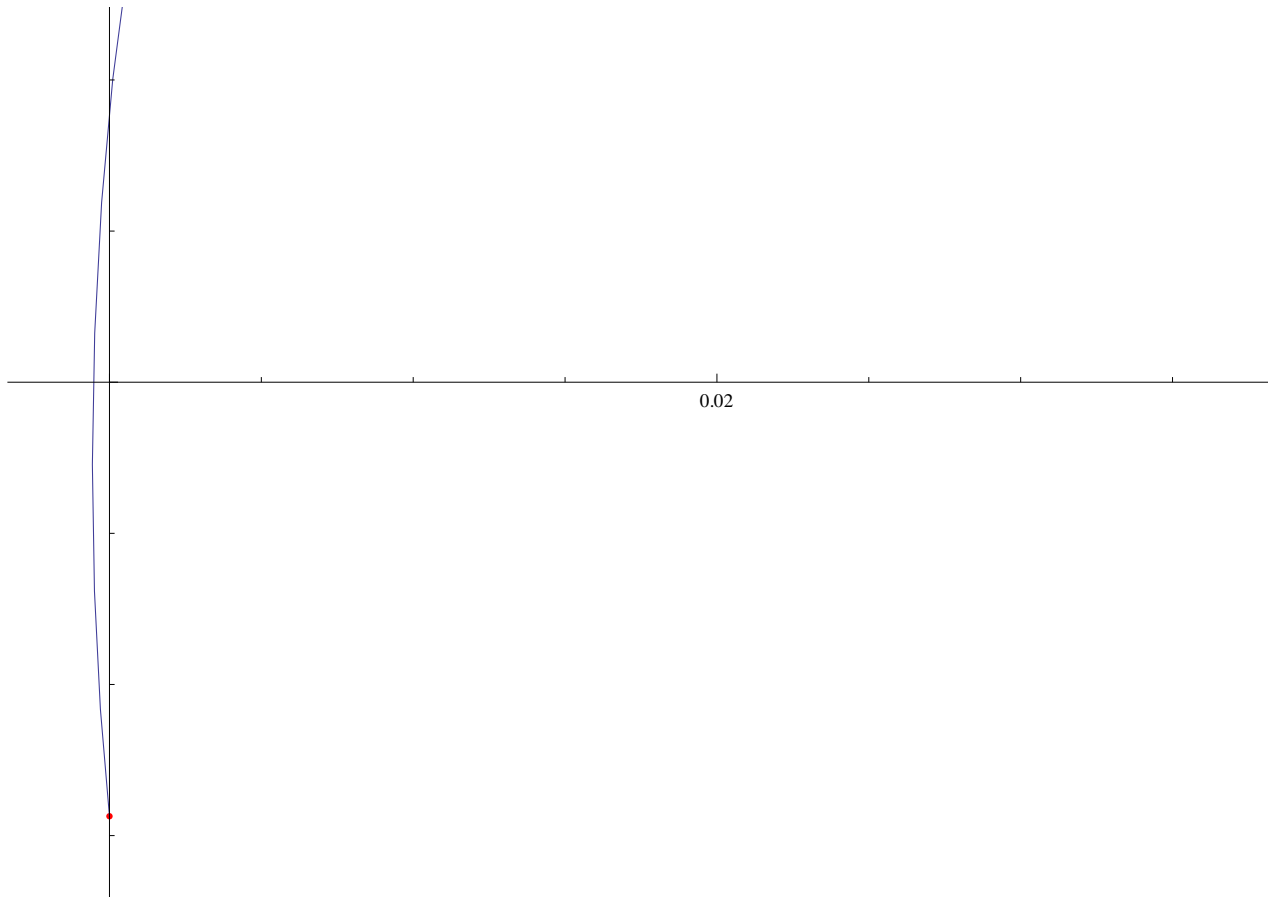
```

```
ListPlot[{dt, d}, Joined → True, PlotRange → All]
```



```
Show[ListPlot[dt, PlotStyle → Red, PlotRange → All],  
ListPlot[tt, Joined → True, PlotRange → All]]
```





```
Show[ListPlot[d, PlotStyle -> Red, PlotRange -> All],
ListPlot[tt, Joined -> False, PlotRange -> All]]
```

```
ListPlot[{#[[1]], #[[2]] - IP[#[[1]]]} & /@ d]
```

Part::partd: Part specification

```
{{-0.0665223, 0.}, {-0.0576328, 0.00595448}, {-0.0520835, 0.012011}, <<5>>, {-0.0348844,
0.0495703}, {-0.0331208, 0.0557423}, <<91>>}[0, 1]
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is longer than depth of object. >>

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General::stop: Further output of Part::partd will be suppressed during this calculation. >>

```
d[[350]] // N
```

```
{-0.00612564, 0.392135}
```

```
IP[-0.006125639472671196]
```

```
0.394174
```

```
IP[t0_] := Module[{t = t0, tt = tt, j = Length[tt]},
  (* j Bestimmung *)
  If[t == 0, j = 1,
    While[t ≤ tt[[j, 1]], j--];
    tt[[j, 2]] + (tt[[j+1, 2]] - tt[[j, 2]] (t - tt[[j, 1]]) / (tt[[j+1, 1]] - tt[[j, 1]])
  ]
```

```
M[n_] := SparseArray[{{1, 1} → -1, n {1, 1} → 1,
  {i_, j_} /; i == 1 && i == j - 1 → 1, {i_, j_} /; i == n && i == j + 1 → -1,
  {i_, j_} /; i == j + 1 → -1 / 2, {i_, j_} /; i == j - 1 → 1 / 2}, n {1, 1}];
```

```
Length[w]
```

```
119
```