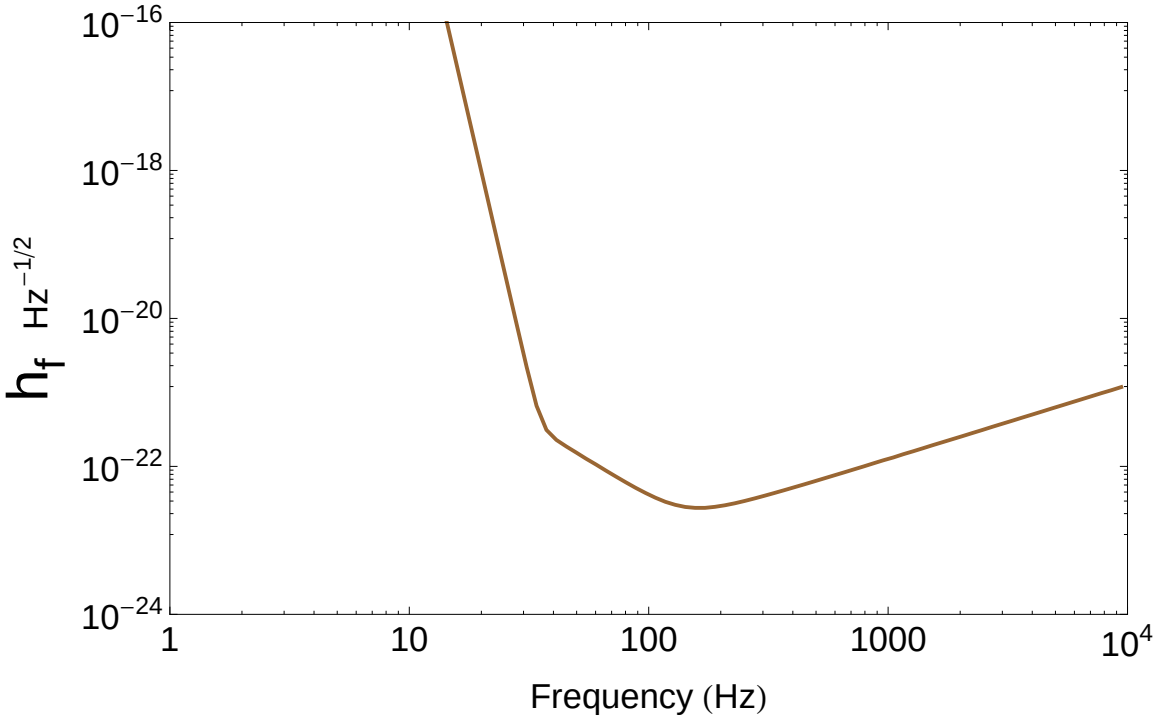
In[537]:=

```
v0 = ListLogLogPlot[Import["D:\\oldligo.txt", "Table"],
  PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, Joined → True,
  PlotStyle → {{Thickness[Large], Brown}}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

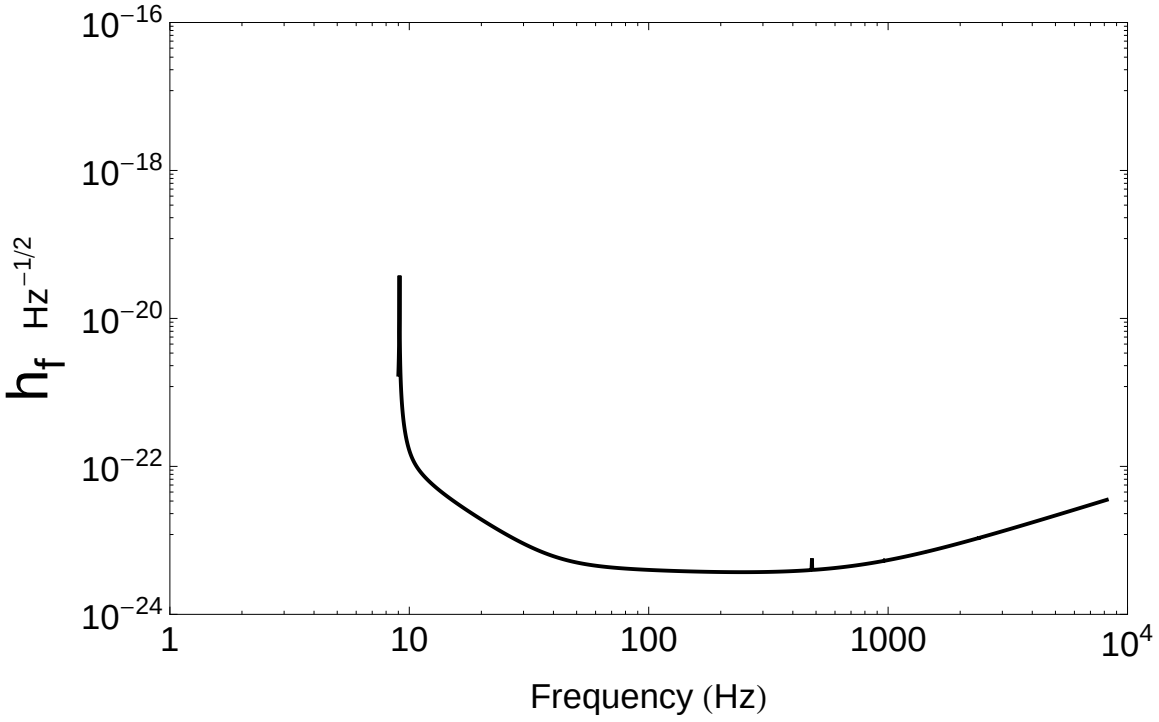
Out[537]=



In[538]:=

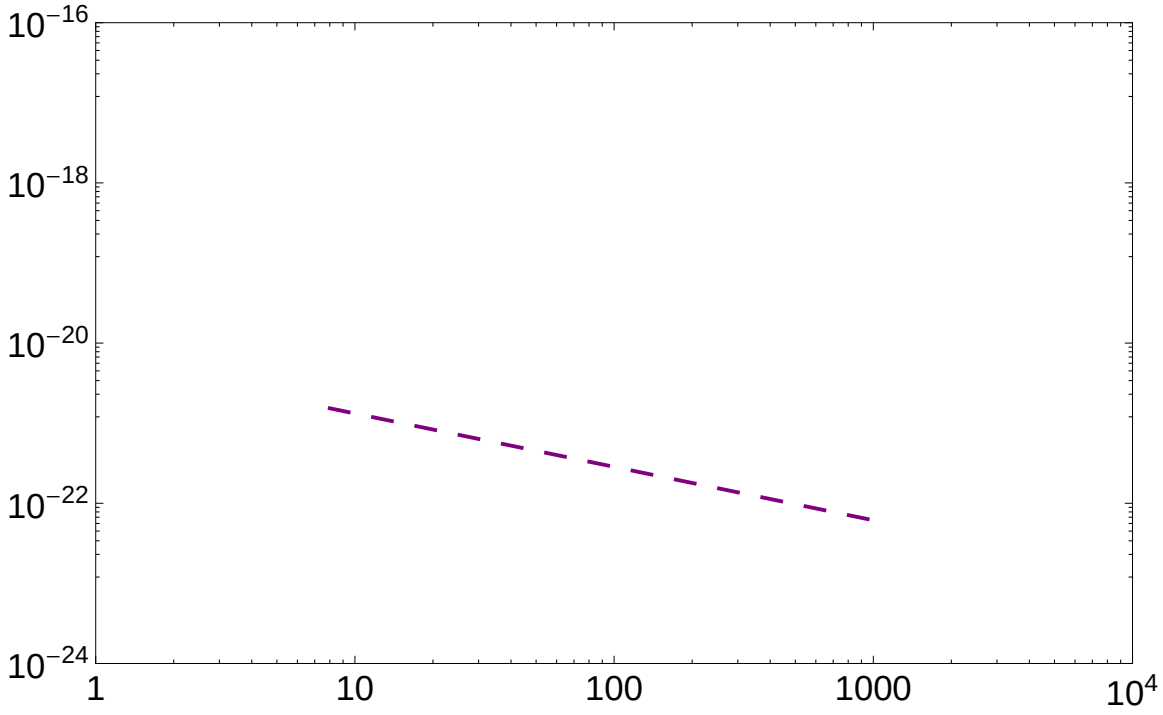
```
v1 = ListLogLogPlot[Import["D:\\aligo.txt", "Table"],
  PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, Joined → True,
  PlotStyle → {{Thickness[Large], Black}}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[538]=



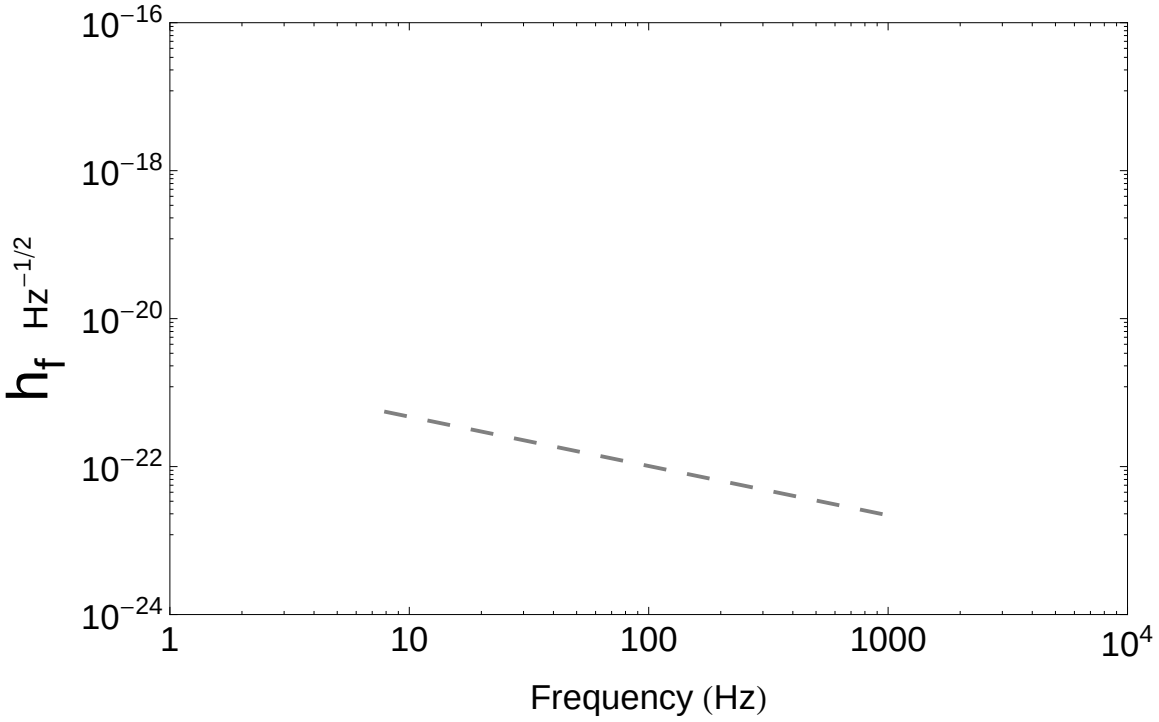
In[539]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 410 * 10^6;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

v2 = LogLogPlot[{Amplitu[36, 29, f]}, {f, 8, 1000},
  PlotStyle → {{Dashing[Large], Thickness[Large], Purple}},
  PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
      Table[{10^i, Superscript[10, i]}, {i, -24, -19}]} FrameLabel → {"Frequency (Hz)",
     (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[544]=



In[545]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 440 * 10^6;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

Needs["PlotLegends`"]
v3 = LogLogPlot[{Amplitu[14.2, 7.5, f]}, {f, 8, 1000},
  PlotStyle → {{Dashing[Large], Thickness[Large], Gray}},
  PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -19}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

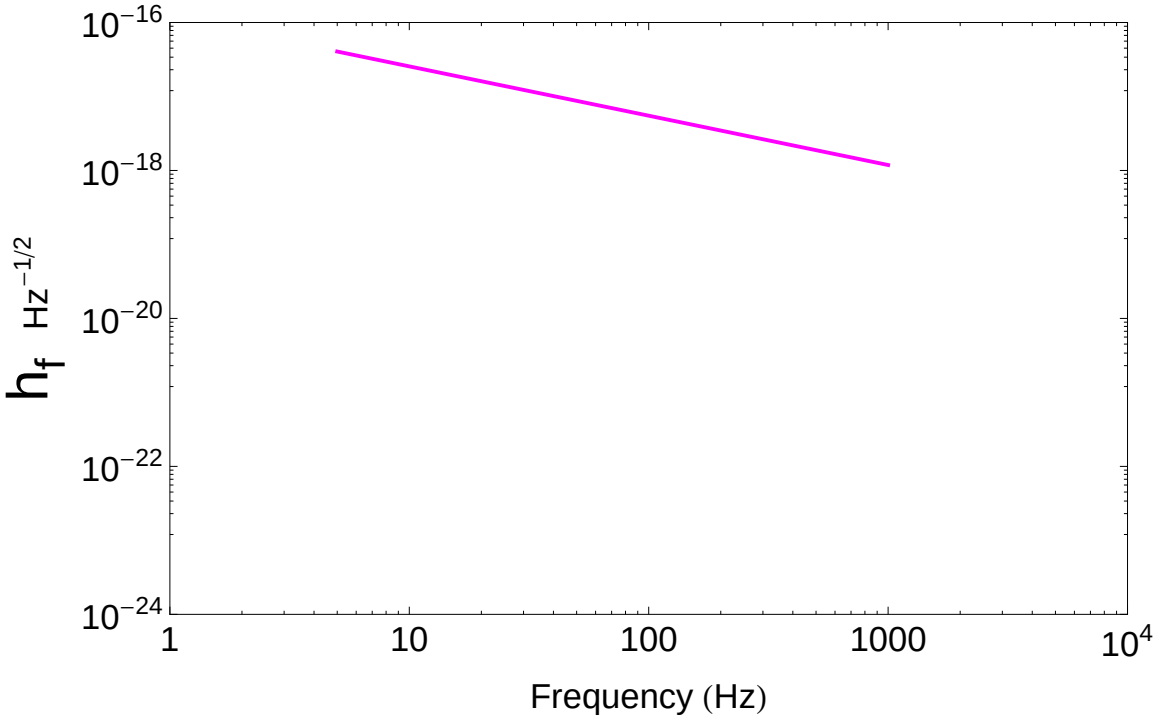
Out[551]=



In[552]:=

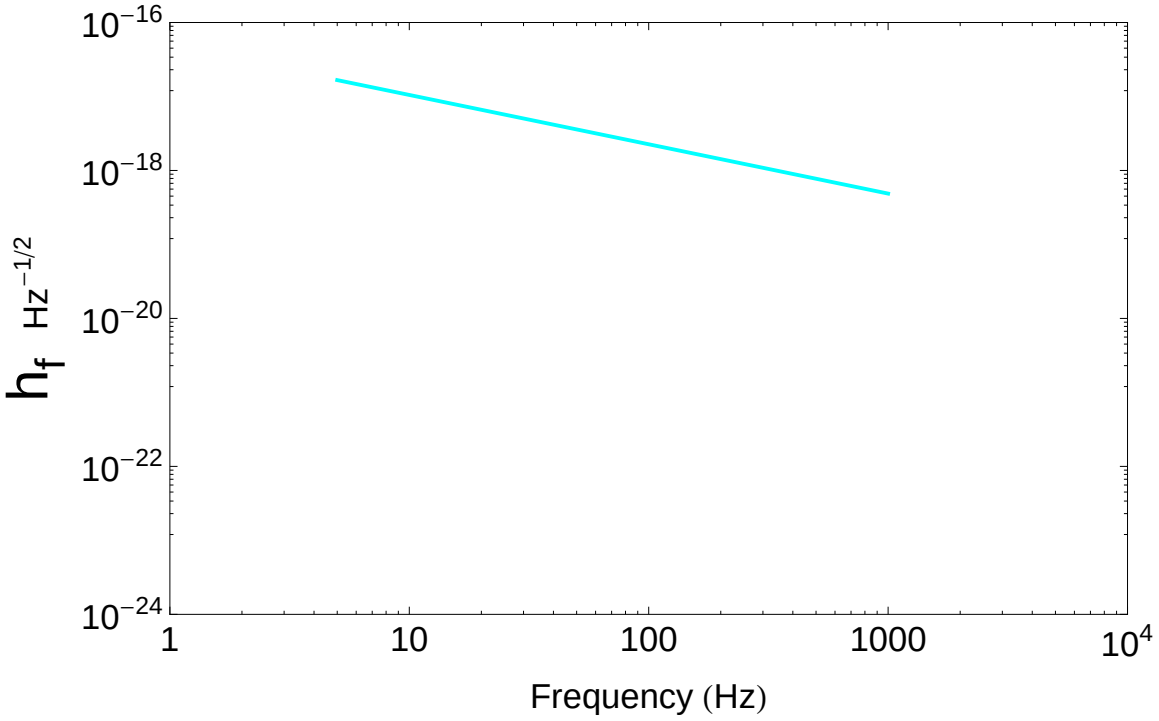
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 8 * 10^3;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

Needs["PlotLegends`"]
v4 = LogLogPlot[{Amplitu[10, 10, f]}, {f, 5, 1000},
  PlotStyle → {{Thickness[Large], Magenta}}, PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[558]=



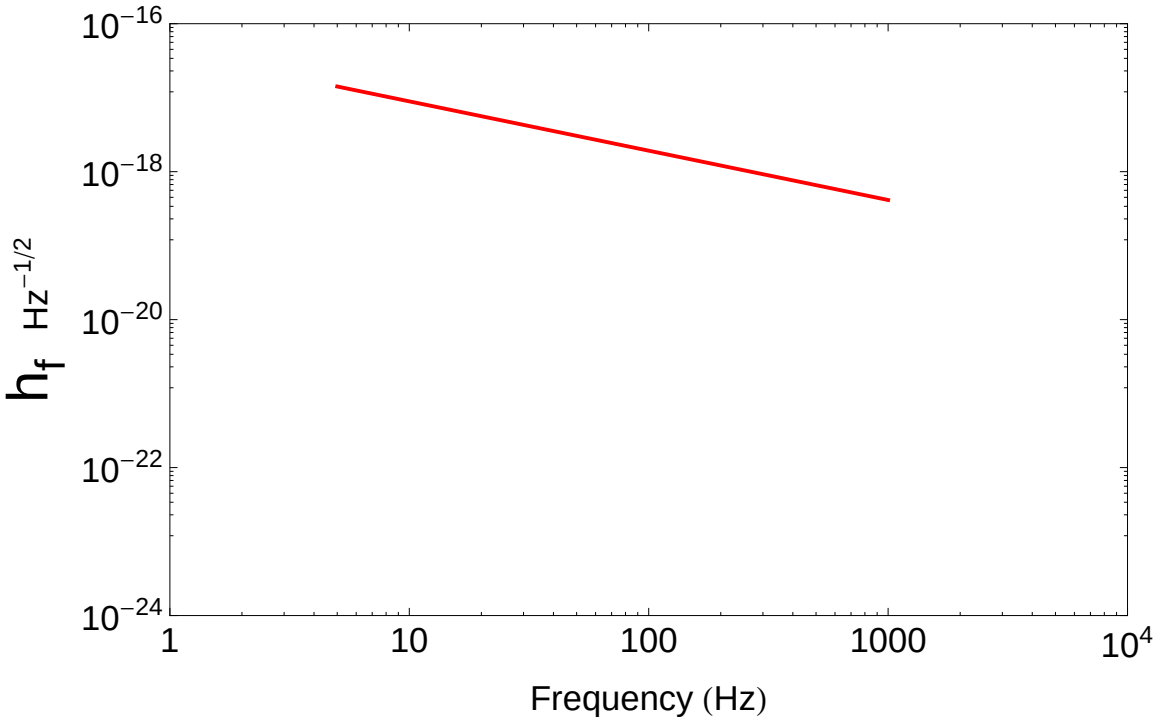
In[559]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 8 * 10^3;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

Needs["PlotLegends`"]
v5 = LogLogPlot[{Amplitu[10, 1.4, f]}, {f, 5, 1000},
  PlotStyle → {Thickness[Large], Cyan}, PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[565]=



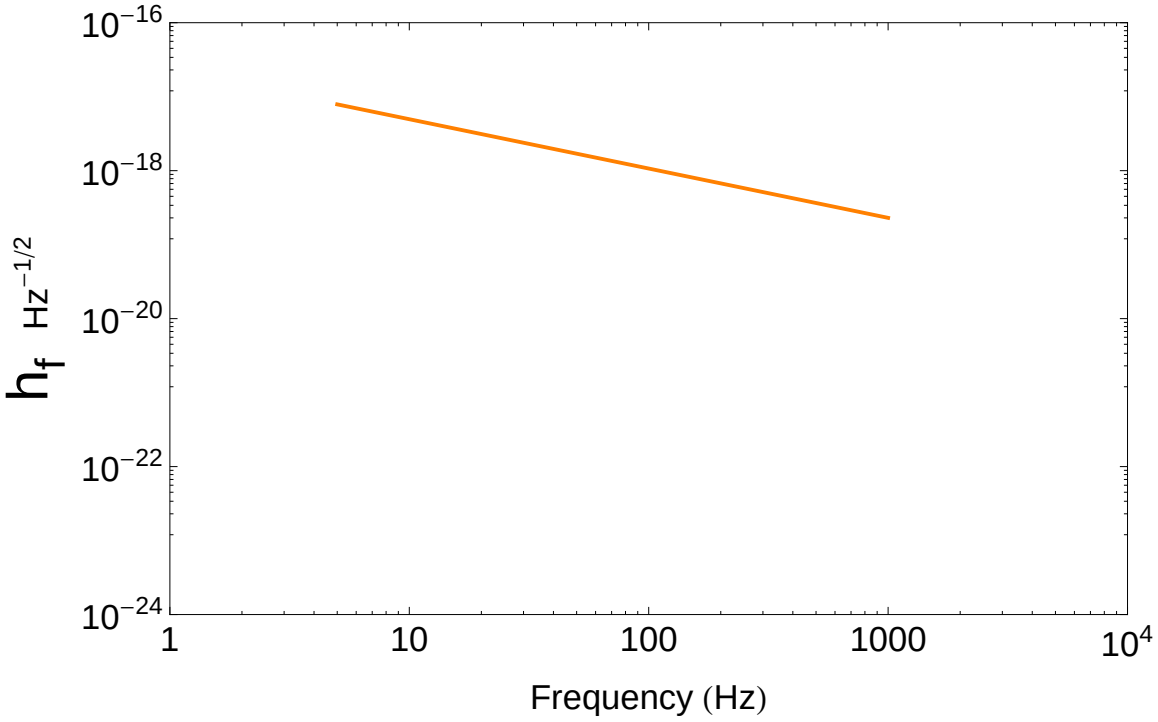
In[566]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 8 * 10^3;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

Needs["PlotLegends`"]
v6 = LogLogPlot[{Amplitu[10, 1, f]}, {f, 5, 1000},
  PlotStyle → {Thickness[Large], Red}, PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[572]=



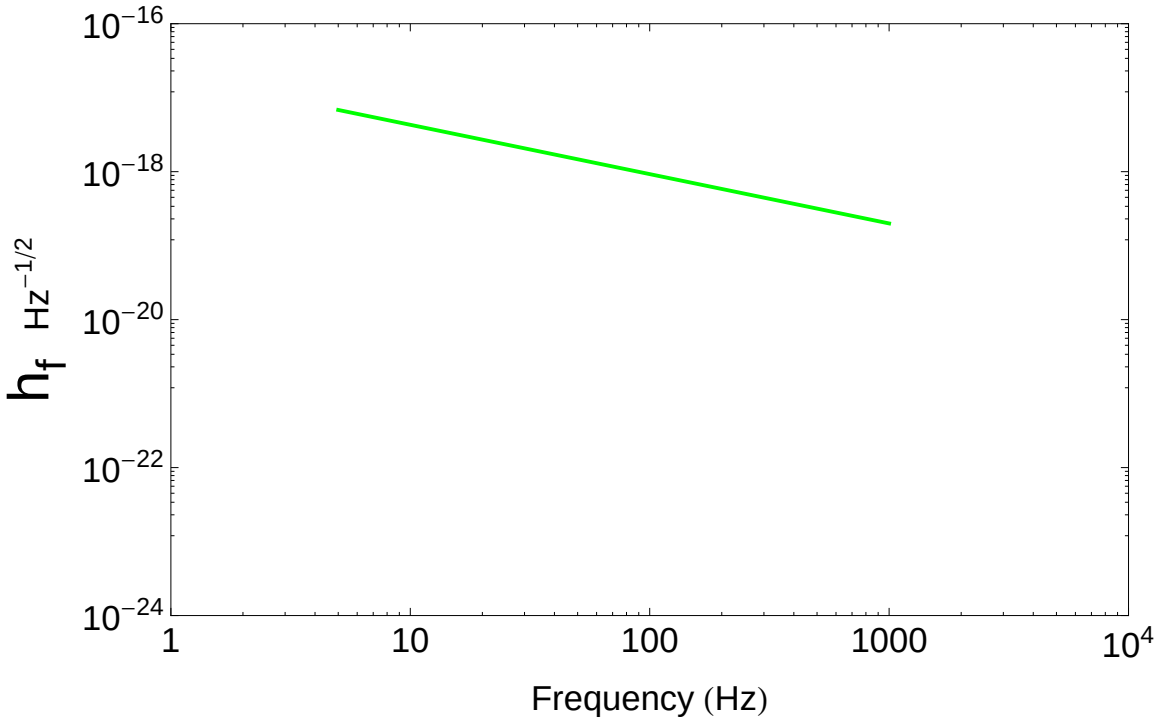
In[573]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 8 * 10^3;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);
Needs["PlotLegends`"]
v7 = LogLogPlot[{Amplitu[1.4, 1.4, f]}, {f, 5, 1000},
  PlotStyle → {Thickness[Large], Orange}, PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[579]=



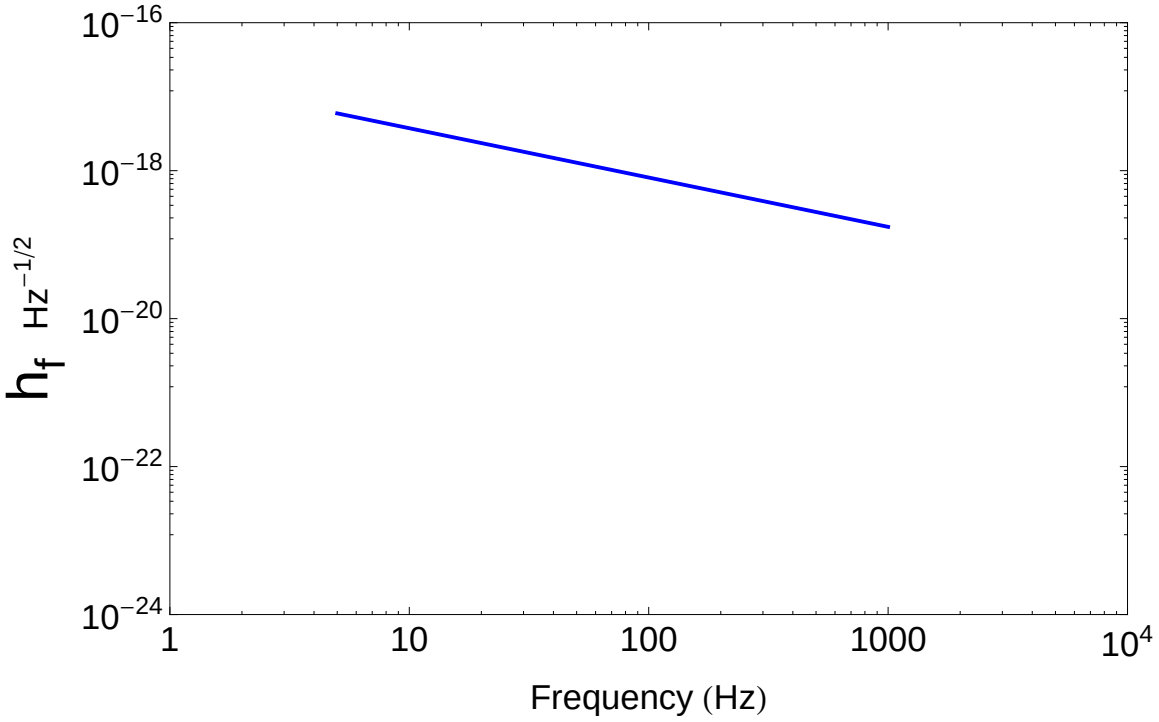
In[580]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 8 * 10^3;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

Needs["PlotLegends`"]
v8 = LogLogPlot[{Amplitu[1.4, 1, f]}, {f, 5, 1000},
  PlotStyle → {Thickness[Large], Green}, PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[586]=



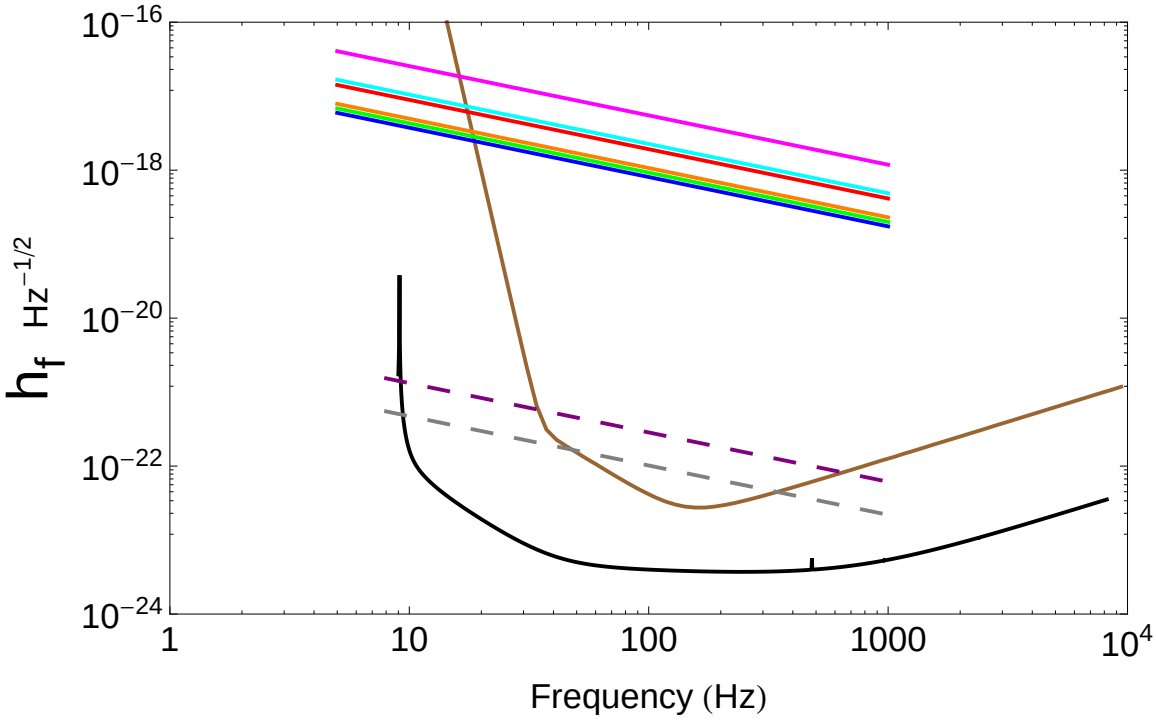
In[587]:=
```
ClearAll[m1, m2 , mchirp, M, r, d, Amplitu]
d = r * 1.0292712503 * 10^8;
r = 8 * 10^3;
mchirp[m1_, m2_] = (m1 m2)^(3 / 5) (m1 + m2)^(-1 / 5);
Amplitu[m1_, m2_, f_] = (mchirp[m1, m2] * 4.92549095 * 10^-6)^(5 / 6) *
   d^(-1) * (3.14)^(-2 / 3) * (5 / 6)^(1 / 2) * f^(-2 / 3);

Needs["PlotLegends`"]
v9 = LogLogPlot[{Amplitu[1, 1, f]}, {f, 5, 1000},
  PlotStyle → {Thickness[Large], Blue}, PlotRange → {{1, 10^4}, {10^-24, 10^-16}},
  Ticks → {Table[{10^i, Superscript[10, i]}, {i, 0, 4}],
    Table[{10^i, Superscript[10, i]}, {i, -24, -16}]}, FrameLabel → {"Frequency (Hz)",
    (Subscript[Style["h", 30], Style["f", 22]]) (Subsuperscript["  Hz", "", "-1/2"])},
  BaseStyle → {FontFamily → "Arial", 18}, ImageSize → 600, Frame → True]
```

Out[593]=



In[594]:=
```
Show[v0, v1, v2, v3, v4, v5, v6, v7, v8, v9]
```

Out[594]=



In[595]:=

```
Needs["PlotLegends`"]

ShowLegend[Show[v0, v1, v2, v3, v4, v5, v6, v7, v8, v9],
 {{{Graphics[{Brown, Thickness[Large], Line[{{0, 0}, {4, 0}}]}],
    Style["LIGO sensitivity", Bold, 13]},
   {Graphics[{Black, Thickness[Large], Line[{{0, 0}, {4, 0}}]}],
    Style["aLIGO sensitivity", Bold, 13]},
   {Graphics[{Purple, Dashing[Medium], Thickness[Large], Line[{{0, 0}, {4, 0}}]}],
    Style["GW150914", Bold, 13]},
   {Graphics[{Gray, Dashing[Medium], Thickness[Large], Line[{{0, 0}, {4, 0}}]}],
    Style["GW151226", Bold, 13]}, {Graphics[
     {Magenta, Thickness[Large], Line[{{0, 0}, {4, 0}}]}], Style["BH-BH", Bold, 13]},
   {Graphics[{Cyan, Thickness[Large], Line[{{0, 0}, {4, 0}}]}], Style["BH-NS", Bold, 13]},
   {Graphics[{Red, Thickness[Large], Line[{{0, 0}, {4, 0}}]}], Style["BH-WD", Bold, 13]},
   {Graphics[{Orange, Thickness[Large], Line[{{0, 0}, {4, 0}}]}], Style["NS-NS", Bold, 13]},
   {Graphics[{Green, Thickness[Large], Line[{{0, 0}, {4, 0}}]}], Style["NS-WD", Bold, 13]},
   {Graphics[{Blue, Thickness[Large], Line[{{0, 0}, {4, 0}}]}], Style["WD-WD", Bold, 13]}},
  LegendSize → {0.7, 0.75}, LegendPosition → {0.85, -0.2}, LegendShadow → None}]
```

Out[596]=