Strange-antistrange EM form factor and PDFs

```
Needs["ErrorBarPlots`"]
```

```
F[Q2_, kappa_, tau_] := Nrm[tau] Beta[tau - 1, 1 / 2 + Q2 / (4 kappa)]
```

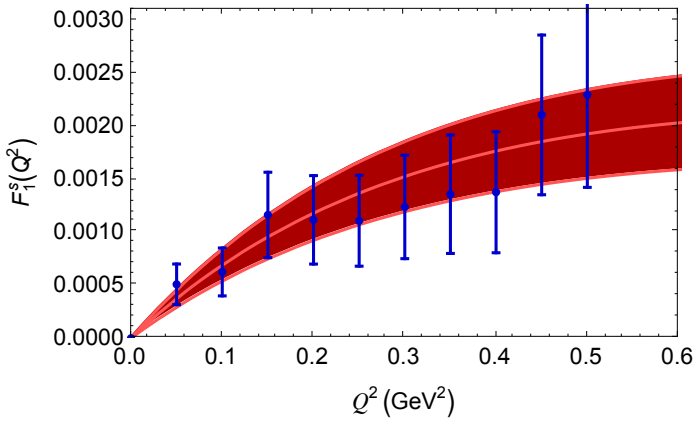
$$\text{Nrm}[\text{tau\_}] := \frac{\text{Gamma}\left[-\frac{1}{2}+\text{tau}\right]}{\sqrt{\pi}\ \text{Gamma}[-1+\text{tau}]}$$

```
Fs[Q2_, kappa_, A_] := A (1 / 3) (F[Q2, kappa, 5] - F[Q2, kappa, 6])
```

```
F1s := Plot[{Fs[Q2, 0.523, 0.18], Fs[Q2, 0.523, 0.23], Fs[Q2, 0.524, 0.28]},
  {Q2, 0, 3}, PlotRange → {{0, 0.6}, {0, 0.004}},
  Frame → True, FrameLabel → {"Q² (GeV²)", F₁ˢ(Q²)},
  AspectRatio → 0.6, Axes → False, PlotStyle → Lighter[Red],
  {Filling → {1 → {{3}, {Darker[Red]}}}}, LabelStyle → Directive[Medium]]
```

```
gF1s := ErrorListPlot[
  {{{0, 0}, ErrorBar[0]}, {{0.05, 0.000508718}, ErrorBar[0.000191641]},
   {{0.1, 0.000625681}, ErrorBar[0.000226002]},
   {{0.15, 0.00116317}, ErrorBar[0.000402902]},
   {{0.2, 0.00111713}, ErrorBar[0.000417305]},
   {{0.25, 0.00110859}, ErrorBar[0.000428704]},
   {{0.3, 0.00123862}, ErrorBar[0.000487677]},
   {{0.35, 0.00135899}, ErrorBar[0.000558897]},
   {{0.4, 0.00137793}, ErrorBar[0.000571282]},
   {{0.45, 0.00210736}, ErrorBar[0.000753396]},
   {{0.5, 0.00229592}, ErrorBar[0.00087244]}},
  PlotStyle → {RGBColor[0, 0, 0.8], PointSize[0.015]}]
```

```
Show[F1s, gF1s, PlotRange → {{0, 0.6}, {0, 0.0031}}, Frame → True,
 FrameLabel → {"Q² (GeV²)", F₁ˢ(Q²)}, AspectRatio → 0.6, Axes → False]
```




```
a := 0.531

w[x_] := x^(1 - x) Exp[-a (1 - x)^2]

q[x_, tau_] := Nrm[tau] w[x]^(-1/2) (1 - w[x])^(-2+tau) w'[x]

sbars[x_, A_] := A (1 / 3) (q[x, 5] - q[x, 6])
```

```
LogLinearPlot[{ x sbars[x, 0.18], x sbars[x, 0.23], x sbars[x, 0.28]},
 {x, 0, 1}, PlotRange → {{0.001, 1}, {-0.004, 0.008}},
 Frame → True, FrameLabel → {x, x[s(x) - s̄(x)]},
 AspectRatio → 0.6, Axes → False, PlotStyle → Lighter[Red, 0.2],
 {Filling → {1 → {{3}, {Darker[Red]}}}}, LabelStyle → Directive[Medium]]
```