Enhanced electroweak radiative corrections in SUSY

- Loops with SUSY particles contribute as $\alpha_{\mathrm{W}}\ (m_{\mathrm{W}}/m_{\mathrm{SUSY}})^2$
- Large violation of SU(2) in third family leads to enhanced oblique corrections $(m_{\mathrm{t}}/m_{\mathrm{W}})^4\ \alpha_{\mathrm{W}}(m_{\mathrm{W}}/m_{\mathrm{SUSY}})^2$, where $(m_{\mathrm{t}}/m_{\mathrm{W}})^4 \approx 16$
- The functions V_{A}, V_{R} and V_{m} describe electroweak radiative corrections to Z-boson couplings to leptons g_{A} and $g_{\mathrm{V}}/g_{\mathrm{A}}$, and to W-boson mass.
- Vertices with gluino exchange generate large corrections of the order of $\hat{\alpha}_{\mathrm{s}}(m_{\mathrm{Z}}/m_{\mathrm{SUSY}})^2$.
- The stop exchange contribution to the vertex corrections to the $\mathrm{Z} \longrightarrow \mathrm{b\bar{b}}$ decay amplitude is not enhanced and neglected.
- $m_{\tilde{\mathrm{b}}} \approx m_{\tilde{\mathrm{b}}_{\mathrm{L}}}$, as $\tilde{\mathrm{b}}_{\mathrm{L}}\tilde{\mathrm{b}}_{\mathrm{R}}$ mixing is expected to be small and $\tilde{\mathrm{b}}_{\mathrm{R}}$ squark does not contribute to the corrections under investigation.
- To reduce the number of parameters we take $m_{\tilde{\mathrm{g}}} = m_{\tilde{\mathrm{b}}}$.
- $\tan\beta$ - the ratio of the vacuum averages of two Higgs neutrals. The dependence on β is moderate so in numerical fits $\tan\beta = 2$.